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ABSTRACT

These appendices present the protocols used in research (reported in Volume 1) on the cognitive processes of students while learning from teaching. Curriculum outlines are given for the videotaped lessons used in the second and third studies: lessons in sleep and elementary psychology. Included in the appendices are: (1) the illustrative script used in producing the videotaped lessons; (2) scripts used in the training group for the second study; (3) essay and multiple-choice tests for studies 2 and 3; (4) scoring keys for the multiple-choice and essay tests; and (5) aptitude and achievement measures for the three regular classroom environments which served as an extension of the second and third studies by employing similar instructional techniques in the form of short videotaped lessons. (JD)

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FINAL REPORT: APPENDICES

Students' Cognitive Processes While Learning from Teaching

(Volume Two)

April, 1983

National Institute of Education Grant
NIE-G-79-0098

Philip H. Winne
Ronald W. Marx

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FINAL REPORT: APPENDICES

Students' Cognitive Processes While Learning from Teaching

(Volume Two)

National Institute of Education Grant NIE-G-79-0098

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APPENDIX A

Curriculum for Studies II and III

LESSONS IN SLEEP CURRICULUM

I	Circadian Rhythms
II	Measuring Sleep
III	Awake or in Light Sleep
IV	Times When you Dream
V	Remembering and Forgetting Dreams
VI	Theories about Why Sleep is Useful
VII	Drugs and Sleep
VIII	Chemicals in the Brain and Sleep
IX	People's Sleeping Problems
X	What Happens When You Don't Sleep
XI	Some People Sleep too Much
XII	Hibernation

Circadian Rhythms

Overview

Each day we go through a cycle. This cycle is called a circadian rhythm and ranges from high activity to low activity. Not only do we find these rhythms in the systems of our body, but they are also found in the way we feel.

Worksheet #1

Circadian Rhythms

Bodily Rhythms

- each cycle is about 24 hours long
- relate to systems of the body

Example If you took your temperature, it would be highest around late afternoon, then would fall to its lowest point near 4 or 5 a.m. Then it would rise again the next afternoon.

Example If you were to take your pulse in the afternoon, you would notice that it was higher than if you took it in the early morning.

Experimental Group Only

Worksheet #1

Circadian Rhythms

Bodily Rhythms

- each cycle is about 24 hours long
- relate to systems of the body

Example If you took your temperature, it would be highest around late afternoon, then would fall to its lowest point near 4 or 5 a.m. Then it would rise again the next afternoon.

Example If you were to take your pulse in the afternoon, you would notice that it was higher than if you took it in the early morning.

A Scientists have found that the amount of sugar in your blood rises and falls at regular intervals. These changes in sugar concentration would be a circadian rhythm if they

a. affected your eating habits.

b. occurred every 12 hours.

c. occurred every 24 hours.

d. changed how lively you felt.

Worksheet #2

Circadian Rhythms

Psychological Rhythms

- concerns how people behave
- each cycle is about 24 hours long

Example Studies of accidents at factories show that workers are more alert around 5 p.m. each day.

Example Little babies are usually cranky and cry a lot in the morning, but they are much more friendly around lunch time.

Experimental Group only

Worksheet #2

Circadian Rhythms

Psychological Rhythms

- concerns how people behave
- each cycle is about 24 hours long

Example Studies of accidents at factories show that workers are more alert around 5 p.m. each day.

Example Little babies are usually cranky and cry a lot in the morning, but they are much more friendly around lunch time.

B Nancy always feels sleepy around 3 or 4 p.m. each day no matter what. This is an example of which of the following?

a. A psychological circadian rhythm.

b. The periodic release of serotonin.

c. Disturbed sleep patterns.

d. Somnambulism.

Measuring Sleep

Overview

Scientists who study people's sleep have to measure it somehow. They do this with machines that record either brain waves or heart beat patterns on graph paper. These measurements are made by attaching small metal disks called electrodes to sleepers' skin while they sleep in a laboratory. These electrodes help measure the level of electrical activity in the sleeper's body.

Worksheet #3

Measuring Sleep

Measuring Sleep by Electrical Activity in the Brain

- equipment is used in laboratory
- produces a pattern of zig-zag waves called an E.E.G.

Example One basic shape of brain waves during sleep is about 1 to 4 tall spikes per second. Scientists usually observe this shape using their laboratory equipment after the person has been asleep in a lab for an hour or more.

Example Just after falling asleep, people's brain waves have about 10 ripples per second. Doctors have found this by using machines in rooms designed to do research on sleep.

Worksheet #4

Measuring Sleep

Measuring Sleep by Electrical Activity in the Heart

- records the number of beats per minute called an E.K.G.
- equipment used in laboratory

Example To measure E.K.G., a set of electrodes is placed on a person in the laboratory. It makes a picture on graph paper that shows that the heart slows down as the person falls asleep.

Example Researchers in sleep laboratories often see that an E.K.G. shows an increased heart rate as a person begins to dream.

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A A sleep scientist was measuring aspects of sleep. He used a machine in his laboratory that recorded a zig-zag pattern of electrical activity in the sleeping person's body. The part of the body being measured probably was the

a. blood vessels

b. heart

c. muscle system

d. brain

B A measure of sleep that records a sleeping person's heart rate is

a. an OMG.

b. an EKG.

c. a MOI.

d. an EEG.

Awake or in Light Sleep

Overview

In this lesson, we explore ways to tell whether a person is really awake or sleeping lightly. Both conditions occur over each day's 24-hour cycle, and the body's uncontrollable activities or reflexes keep working in both conditions. People who are awake are aware of things that happen around them. When they are sleeping lightly, though, their reflexes and uncontrollable activities slow down.

Worksheet #5

Awake or in Light Sleep

Awake

- reflex behaviors are normal
- person is aware of events going on

Example Walking through a room in the dark, Todd can hear the cars outside his house. If he should step on the point of a pencil, he would move his foot back right away without thinking about it.

Example When watching a hockey game, Linda knows which team is wearing which colors. When her father calls her name loudly, she turns around automatically.

A Jerry is lying on the sofa with his eyes closed and the radio is playing. His mother asks him if he wants a hot dog for lunch and he says "Sure, do we have any potato chips?" We know that Jerry is awake because

a. his reflex behaviors are operating correctly.

b. he is not rapidly fluttering his eyes.

c. his heart beat is not slow.

d. he is aware of what is happening around him.

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Worksheet #6

Awake or in Light Sleep

In Light Sleep

- person's rate of breathing gets slower and steadier
- reflex behaviors are normal

Example Mike knew his brother was asleep because he was breathing deeply only every 15 seconds or so. But, when he dropped the jar of jelly on the floor, Mike's brother was startled and jumped up.

Example When we are just falling asleep, we begin to breath less often than when we're awake. But, if we start to roll out of bed or off the couch, we put out our hands to break a possible fall right away.

B You have been watching TV with your family for a half hour. You notice that your dad's eyes are closed and he is breathing more slowly and steadily. The cat jumps on your dad's chair and he gets startled. Your dad has probably been

a. in light sleep.

b. experiencing REM sleep.

c. awake.

d. in deep sleep.

Times When You Dream

Overview

This lesson is about dreams which are a series of visual images or mental pictures. Some dreams occur in light sleep when your eyelids are not moving. Other dreams occur in deep sleep when your eyelids move.

Worksheet #7

Times When You Dream

Dreams in Light Sleep

- occur as you fall asleep or wake up
- little or no movement of eyelids
- seems like you are living the events rather than just watching them

Example After a long drive to Vernon, Sue begins to nap. Sue's father sees her eyes and body are very still. She is dreaming about how cold it felt when she spilled her coke on her lap.

Example Mike has fallen asleep again after his alarm went off. He is perfectly still. He dreams about yesterday's gym class, and then fooling around during the movie in science class. He'll wake up again in a moment.

Dreams in Deep Sleep

- eyelids flutter rapidly, called REM
- seems like you are living the events rather than just watching them
- happen only after sleeping at least 1½ hours.

Example Around 2 in the morning, Henry's eyes are moving a lot as he dreams about playing professional hockey. He feels a hard check, then falls down and slides 10 metres before the whistle blows.

Example Your dog starts to bark, move his legs and blink after he's been sleeping for a few hours. He's probably chasing the neighbor's cat in his dream.

A Jan woke up in the morning, then fell back to sleep. His eyes are very still and he is dreaming about going swimming. He can feel the cool water and the warm sun. This pattern is an example of

a. a circadian rhythm.

b. dreaming in light sleep.

c. dreaming in deep sleep.

d. a REM dream.

B If you wanted to watch someone's eyes in REM sleep, you should

a. wait until the person is in a state of relaxed wakefulness.

b. watch the person as soon as he falls asleep.

c. wait until the person has been asleep for about 2 hours.

d. use an EEG to record sleeping times.

Remembering and Forgetting Dreams

Overview

Everybody remembers some dreams and forgets others. People who are better at remembering things in general also tend to remember dreams well. And, people who dream more than others have more dreams to remember than people who dream less. Many of the dreams you tend to remember occur just before you wake up. And, some dreams you tend to forget were about events that would make you very upset.

Worksheet #8

Remembering and Forgetting Dreams

Dreams you tend to remember

- about events important to you
- usually occur near to time you wake up

Example A wife heard her husband mumbling loudly in his sleep about 6.30 a.m. At breakfast, the husband told about a dream in which he had been promoted to vice president at work.

Example Tommy told his sister that he had a dream about coming home from the hospital last night. The nurse said, "I thought so. I saw you with a big big smile on your face just before you woke up around 7 this morning."

Dreams you tend to forget

- usually about things that make you very unhappy or embarrassed
- about events important to you

Example A young girl went to the school counselor because she was unhappy about something she couldn't remember. The counselor helped her recall a very bad dream where she was playing in a car and accidentally ran over her puppy.

Example A man at his doctor's complained of being upset. After talking a long while, he remembered a dream about breaking a vase that his great grandmother had given him long ago. It was an especially favorite vase because it held the flowers she gave him when he got married.

Compare and contrast the characteristics of dreams you probably forget with dreams you are likely to recall.

Ideal Answer

They are both the same because they are about things that happen to you that are important. They are different because you usually forget dreams that are about events that embarrass you or make you very unhappy, and you tend to remember dreams that occur just before you wake up.

A. Don was having a dream about buying his first motorcycle on his 16th birthday. He would probably remember this dream if

a. he was in REM sleep.

b. there were no other dreams to mix up his memory.

c. he'd had a sound night's sleep.

d. he woke up in about 10 minutes.

B. Fran had a dream about the time when she lost her mother's wedding ring. Fran probably wouldn't remember this dream because

a. it is about a very unhappy topic.

b. the dream wasn't very long.

c. most dreams are forgotten.

d. she couldn't afford to buy her mother a new ring.

Theories About Why Sleep is Useful

Overview

This lesson is about theories of why animals sleep. A theory is a set of ideas which help scientists invent experiments. We are going to speak about one theory which explains why animals sleep different amounts of time. This theory is about how sleeping adapts to an animal's life. The other theory we are going to discuss says that animals sleep to refresh their body and that dreams help refresh the brain.

Worksheet #9

Theories About Why Sleep is Useful

Theories about Adapting to Life

- explain why different animals sleep different amounts of time
- explain why animals sleep

Example Gorillas sleep about 14 hours a day, but deer sleep only about 2 hours a day. Gorillas don't need to spend lots of their time searching for food, but deer must move around and avoid predators like wolves.

Example An elephant sleeps only several hours a day, while a baboon can sleep all through the night. The elephant needs lots of awake time to find enough food. A baboon can easily find plenty of food in nearby trees and bushes.

Theories about Refreshing the Body

- explain why animals sleep
- deep sleep with dreams helps refresh the brain

Example After a lot of exercise during the day, cats spend lots of time in deep sleep. During dreams, more blood was pumped to the brain bringing more oxygen to it.

Example As people get very old, they spend less of their sleep time in dreaming. Since about 5% of their brain cells have died, they need less dream time to refresh mental activities.

What are the similarities and differences between theories of sleep about adapting to life and theories of sleep about refreshing the body?

Ideal Answer

These two theories are similar because they both explain why animals sleep. They are not alike because the theory about adapting to life explains why different animals sleep different amounts of time, but the refreshing the body theory doesn't explain this. The refreshing the body theory claims that deep sleep with dreams helps refresh the brain.

A. One of the major characteristics of adaptive sleep theory is that it

a. shows how chemicals influence sleep cycles.

b. explains why a lion would sleep more than an antelope.

c. predicts when an animal won't need sleep.

d. does not help sleep scientists do experiments about sleep.

B. Dolphins have brains that are much larger than the brains of horses. Theories of sleep based on the principle of refreshing the body would predict that

a. horses and dolphins would sleep about the same amount of time each day.

b. horses would sleep more than dolphins.

c. dolphins would sleep more than horses.

d. neither kind of animal would sleep very much.

Drugs and Sleep

Overview

This lesson is about how drugs affect the length of time we sleep. We are going to discuss drugs which make us sleep by lowering our bodily functions. Also, we are going to speak about drugs which raise our bodily functions and prevent us from sleeping.

Worksheet #10

Drugs and Sleep

Drugs that Bring on Sleep

- not always prescribed by doctors
- lower level of body functions to bring on light sleep

Example Many people drink alcoholic beverages during dinner. These drinks often reduce the person's rate of breathing and their pulse, while also making them drowsy.

Example Recent scientific studies have shown that drinking warmed milk can help bring on sleep. It helps the body release a chemical that decreases the amount of activity in the brain.

Drugs that Keep People from Getting to Sleep

- not always prescribed by doctors
- increase activity in systems of the body

Example A chemical in coffee, called caffeine, is drunk by a large number of people. By speeding up heart rate, this chemical helps people stay awake at night.

Example Not many children know that many soft drinks, like Coke, contain a chemical that is a stimulant. It can keep you awake because it makes you breathe faster and increases your heart rate.

Compare and contrast drugs that bring on sleep and drugs that keep people from getting to sleep.

Ideal Answer

Some of the drugs that bring on sleep and some that keep people from getting to sleep are not prescribed by doctors. They are different because drugs that bring on sleep lower the levels of body functions so that light sleep starts, but drugs that keep people from falling asleep increase the levels of activity of body systems.

A. Some foods or drinks, like warm milk, help people fall asleep at night. This happens because drugs in these foods

a. make people dream more so they will sleep more.

b. slow down body functions, which helps bring on sleep.

c. speed up body functions so that people get tired.

d. cause REM sleep, which causes people to sleep more deeply.

B. George drinks three Pepsies every night while watching TV. He probably has trouble falling asleep because drugs in some soft drinks

a. interfere with dreaming in deep sleep in the middle of the night.

b. interfere with circadian rhythms and cause people to sleep at the wrong time.

c. cause people to stay in light sleep.

d. speed up body activities which tends to keep people awake.

Chemicals in the Brain and Sleep

Overview

For today, we are going to discuss some of the natural chemicals found in the brain which affect sleep. These chemicals affect the way we feel and behave. Some chemicals found in the brain help us to sleep; we will call these facilitating chemicals, while other chemicals tend to keep us awake; we will call these inhibiting chemicals.

Worksheet #11

Chemicals in the Brain and Sleep

Facilitative Chemicals

- chemicals made in the body
- encourage sleep

Example A chemical called serotonin is made in your brain in an area called the raphe. It is released by the brain to help you get to sleep.

Example Scientists have found that giving animals a shot of a chemical called A.C. can put them to sleep in a few seconds. A.C. is made in your body where the back of the skull meets your neck.

Inhibiting Chemicals

- keep you awake
- chemicals made in the body

Example A gland on your kidney makes a chemical called adrenalin. When scientists give sleeping animals a shot of this chemical, they usually wake up very quickly.

Example In your body, a chemical called M.O.I. tends to reduce the effects of other chemicals that put you to sleep.

There are two kinds of chemicals in the brain, facilitative chemicals and inhibiting chemicals, that are related to sleep. How are they the same and how are they different?

A. Facilitative chemicals in the brain affect people by

a. helping them fall asleep.

b. making them stay awake.

c. starting REM sleep.

d. stopping reflex behaviors.

B. The chemical called N.A. is made by your body. If it is called an inhibiting chemical, it

a. doesn't affect psychological rhythms.

b. slows down your EEG.

c. keeps you from falling asleep.

d. increases dreams in deep sleep.

People's Sleeping Problems

Overview

Often people have problems with their sleeping to the extent that their sleep problems cause them trouble. Some people have trouble getting to sleep. We call this insomnia. Other people try to act out their dreams by sleep walking.

Worksheet #12

People's Sleeping Problems

Insomnia

- difficulty in getting to sleep or staying asleep
- must seriously interfere with daily life

Example A 30-year old man complained to his doctor that he could sleep only a few hours each night. He said this made him so tired that his boss might fire him for not working hard.

Example A 7-year old boy could not sleep in the bedroom where a thief had broken into his house. Because he was always tired, he began to get poor marks at school.

Sleep Walking

- must seriously interfere with daily life
- may be acting out a dream

Example A wife kept getting calls from the neighbors when her husband sung while sleepwalking in the hall of their apartment. Several times, people called the police. The husband thought he was delivering singing telegrams.

Example A young girl often walked in her sleep believing she was playing hide and seek with her cat. She chipped a tooth and broke her finger by falling over furniture.

In what way are insomnia and sleep walking alike? How are they different?

A. Several weeks after Nancy had escaped a fire in her aunt's house, she could not sleep well throughout the night. She was very cranky during the day, and was sent to the principal's office for the first time this year. Nancy probably has

a. hypersomnia.

b. somnambulism.

c. sleeping sickness.

d. insomnia.

B. Peter's parents often found him sitting on the floor, sound asleep and playing with a toy. When Peter awoke as he was put back into bed, he said he was dreaming about playing in a really neat sandbox. Peter wouldn't be called a sleep walker because

a. his activities didn't disturb his life very much.

b. he never really walked around while asleep.

c. he was dreaming while playing on the floor.

d. he woke up as his parents put him to bed.

What Happens When You Don't Sleep

Overview

In this small lesson we are going to talk about what happens when people don't sleep. We are going to talk about people who don't sleep at all for a few days, as well as people whose sleep is interrupted frequently.

Worksheet #13

What Happens When You Don't Sleep

Staying Awake for a Very Long Time

- makes animals and people act strange
- no sleep for several days or more

Example A scientist studied a man who did not sleep for five days. The man said he tried to help a woman out of the rain by opening his refrigerator door. The man insisted the woman was real.

Example A dog was not allowed to sleep for a week. He would not let his owner pet him, and sometimes howled at his food.

Not Getting A Full Night's Sleep

- sleep is disturbed often so sleeper wakes up
- makes animals and people act strange

Example A monkey was woken up every three hours. After a week of this, she stopped cleaning herself and spit all the other monkeys. A few good nights of rest cured her, however.

Example A mother who gets up several times a night to take care of a new baby often is hard to get along with the next day. She may even not want to take care of the new baby who she spent time with during the night.

Compare and contrast staying awake for a very long time and not getting a full nights sleep.

A. Larry complained to his doctor that he could hear his radio even when it wasn't on and that he felt small drops of water always falling on his hands. It is likely that Larry

a. has been skipping light sleep and going directly to deep sleep.

b. was once infected with malaria that disturbs his sleep habits.

c. has not slept in several days or more.

d. would not have dreams during tonight's sleep.

B. Mr. Danat's wife usually began to kick or hit lightly as she started to dream in her sleep. To break her of this habit, Mr. Danat began to wake her up each time she did this. Mrs. Danat

a. probably has a short REM period.

b. probably will be irritable this week.

c. is a sleep walker that doesn't actually get out of bed.

d. will be cured of her thrashing about using this method.

Overview

Lots of Sleep

In today's lesson, we'll explore two very different situations in which there is a lot of sleeping happening. In the first segment of the lesson, the topic will be PEOPLE WHO SLEEP TOO MUCH. This will be about illnesses which cause people to sleep too much. One illness is narcolepsy which seems to run in families and the other illness, hypersomnia, is often caused by problems with various parts of the body.

The second segment of today's lesson is HIBERNATION. It is about some animals who experience a long period of sluggishness, sleepiness and numbness at particular times of the year. We'll be speaking about two kinds of hibernation; true hibernation, which is a slow down of an animal's bodily processes to a very low level, and fake hibernation, where the body temperature is at the usual level.

Worksheet #14

Some People Sleep Too Much

Narcolepsy

- attack of uncontrolled sleeping
- believed to be inherited within families

Example Scientists have bred special families of dogs to do research on narcolepsy. These dogs sometimes just fall over asleep for 2-3 minutes when they're playing on the lawn.

Example Tim's father sometimes falls asleep very quickly while gardening or playing checkers. The doctor thinks Tim may have the same problem.

Hypersomnia

- uncontrolled sleeping
- often caused by problems with other systems in the body

Example A student in college often fell asleep slowly at practically any time of the day. His doctor found that a growth in his skull caused this problem.

Example Some people fall asleep as soon as they get home in the evening, even before dinner. Sometimes this means that their thyroid glands in their necks are not working properly.

Worksheet #15

Hibernation

Real Hibernation

- body processes slow down to very low levels
- helps animals survive periods when food is scarce

Example Frogs are cold-blooded animals that burrow in the mud over the winter since their food, like insects, is gone in this time of year. They stop breathing entirely and absorb oxygen through their skin.

Example In the winter when your garden dies and there are no leaves and vegetables, the garden snail digs a burrow, turns itself upside down and covers the shell opening with a membrane with only a tiny breathing hole. The snail barely breathes in comparison to its active state.

Fake Hibernation

- helps animals survive periods when food is scarce
- keep body temperature at usual level

Example A bear's food supply of insects and berries and fish gets very low in winter, so it sleeps through this season. It stays warm by using up fat it has gained in the fall.

Example The cold and snow of winter make it difficult for skunks to find grubs, rodents, plants and insects to eat. In groups of 4 to 20 they sleep in dens. They use up the body fat they have stored.

LESSONS IN PSYCHOLOGY CURRICULUM

I How to be a Good Listener and a Better Friend

II Why People Follow the Crowd

III How to Feel More Comfortable in Embarrassing Situations

IV How to Stop Worrying

V How to Get Things Done Which We Don't Like to Do

VI How People Can Learn to Relax

VII What Makes Your Pet Smart or Dumb

VIII Psychology to Train Your Pet

IX How to Stop Your Pet from Misbehaving

X Baby Talk

XI Younger Children Think Differently Than You Do

XII How to Stop Young Children from Teasing

NAME: ______________________

SCHOOL: ______________________

GROUP: ______________________

GETTING ALONG WITH PEOPLE

Day 1

Overview

Getting Along with People

It is very important that people be able to get along with other people. In this lesson, we'll examine three kinds of situations where psychology can help you to get along better with people.

The first situation we'll learn about is how to get along better by learning how to really listen to what other people are saying. One way that shows another person that you are really listening to them depends on how you behave. A second way to show you are really listening is based on things you say to the person who is talking to you.

The next part of the lesson will explore ways that people learn to fit in with the other people around them. One of the ways psychologists describe this process of learning to be like others is called modelling. The second way that people learn how to be like others is called peer pressure. This is when friends influence what you do.

Finally, we'll learn ways that psychology can help people to be less embarrassed. By teaching people to talk to themselves, they can learn to be comfortable in situations that usually might upset them. Also, learning to make up positive images about ourselves is another way to be less embarrassed and get along better with people.

Worksheet #1

How to be a Good Listener and a Better Friend

Non-Verbal Listening Skills

- show that you are listening by the way you behave
- help people recognize that you are friendly

Example People can see that Mr. Kincaid, the principal, is a nice person because he looks right at them when he is sitting and talking with them.

Example One thing that makes Jennifer very popular is that she always looks directly into your eyes when you speak to her.

Verbal Listening Skills

- show that we are listening by what we say
- help people recognize that you are friendly

Example People think that Miss Carver is a very friendly teacher. When they say something in class, she usually talks to them for a few seconds about what they said.

Example Mr. Smart, the bus driver on the way to school, is always friendly. One of the ways we know this is because he always calls us by our names.

Worksheet #2

Why People Follow the Crowd

Modelling

- observing others
- causes you to change

Example Ed used to cut his spaghetti into pieces so he could eat it without slurping. After watching his friend twirl the spaghetti by resting a fork full of spaghetti on a spoon, Ed stopped cutting and took up twirling.

Example A new girl in the school used to wear mostly plaid sweaters and skirts. Now she wears solid color sweaters and slacks after looking at what the other girls wore.

Peer Pressure

- friends have direct influence on you
- causes you to change

Example Bob hardly ever swore before he joined a local hockey club. All the other guys called him a sissy, so he began to swear like they did.

Example When Linda moved to a new school, all her new firends studied really hard at night. They said that Linda should study hard, too, so that their teacher would be happy with their marks. So, Linda began to spend more time studying.

Worksheet #3

How to Feel More Comfortable in Embarrassing Situations

Talking to Ourselves

- happens in our mind
- positive statements like "I can do it"

Example A teenage girl felt uncomfortable when boys who she didn't know talked to her. Her aunt told her to think thoughts to herself like "I can talk with him without being embarrassed. I know a lot of things that I can talk about." It worked.

Example A mother was always embarrassed when she went to the doctor. Her doctor, noting her embarrassment, suggested that she think more positive thoughts such as "everyone likes me - I shouldn't be embarrassed."

Imagining About Ourselves

- positive images of ourselves doing something
- happens in our mind

Example George was always embarrassed when he was introduced to his father's friends. But he changed his feelings when he started to picture himself as a famous hockey player who his father's friends wanted to meet.

Example A young boy at his first school dance was embarrassed about the way he danced. His mother suggested that he imagine that he was John Travolta at the next dance and he would feel better about his dancing.

NAME: ______________________

SCHOOL: ______________________

GROUP: ______________________

HOW TO FEEL BETTER ABOUT YOURSELF

Day 2

Overview

How to Feel Better About Yourself

There are lots of times when people wish they could do something that would make them feel better about themselves. In this lesson, you'll learn about ways that psychologists have discovered to help people make this wish come true. The first part of the lesson will be about some ways people can use to stop themselves from worrying too much. One way, called thought stopping, will be presented along with another procedure that simply involves keeping busy.

Another situation where people may not feel good about themselves is when they have to do a job that they don't like to do. In other words, they just aren't motivated. In the lesson, we will explore two ways to help people with this problem - learning to motivate yourself, and learning how to get other people to motivate you.

The last section of this lesson will be about another problem that often makes people feel bad about themselves - not being able to relax. Ways that psychologists help people with this problem will be examined. One way to teach people to relax is called relaxation therapy. Another way that we'll study is called bio-feedback.

Worksheet #1

How to Stop Worrying

Stopping Your Thoughts

- something you can do to stop worry
- use a thought to stop thoughts

Example Marty is very worried before every tennis game that she plays. Her coach suggested that she think about making her mind "blank like an empty chalkboard." Marty did this and was not upset at her next tennis match.

Example A young girl always worried that she was too short. When she spoke to her counsellor, the counsellor suggested that she could stop the worry by yelling to herself in her mind, "It is really stupid to worry about something I can't change", every time she began to worry.

Keeping Yourself Busy

- something you can do to stop worrying
- use activity to stop worry

Example A student teacher usually became very worried as he planned the lessons he would give the next day. The regular teacher said that making up worksheets might help. So, that evening, the student teacher made several neat worksheets. He found that he wasn't worried anymore.

Example A man was worried that he would never find a wife. This made the man very unhappy and most unattractive. His family physician recommended that he find himself a hobby and spend time on it everytime he began to worry. After a few months the man had found a good hobby and began to worry less.

Worksheet #2

How to Get Things Done Which We Don't Like to Do

Motivating Ourselves

- waiting until we do the thing we don't like
- giving ourselves rewards

Example Sally always hated mowing the lawn. She decided to give herself a little present after each time that she mowed it. Now, right after Sally mows the lawn every week, she goes to the movies.

Example A man who was trying to lose weight found that he could lose about three pounds a week if he bought himself some new clothes after each week that his weight dropped.

Having Others Motivate Us

- waiting until we do the thing we don't like
- asking others to reward us

Example Betty really wanted to get better marks, but hated doing homework. However, she asked her mother to let her stay up an extra half hour each night after she did all her assignments. In only a few weeks, Betty was getting all her homework done.

Example A father was trying to quit smoking. He asked his children to bring him breakfast in bed only when he had not smoked any cigarettes on the previous day. Soon, he was not smoking at all on Friday and Saturday.

✓

Worksheet #3

How People Can Learn to Relax

Relaxation Therapy

- feeling tense, then relaxing
- helps you learn to reduce tension

Example A soccer player was very up tight before each game. A friend taught him to lie down and make his body stiff as a board, then loose as a wet rag. Doing this back and forth several times cured him of being up tight.

Example A businessman had been under a great deal of pressure at work and had just lost a large sales contract because he was so tense. A friend recommended that he go to the company counsellor and join a relaxation group. In this group, he was taught to tense all of his muscles then let go and relax. He was told to repeat this for 30 minutes a day. Soon, he could stop being up tight.

Bio-Feedback

- watching your bodily functions on a machine
- helps you learn to reduce tension

Example A man at a very expensive vacation club was taught how to relax by trying to change his brain waves shown on a special TV screen. When he could make the waves very slow, he was relaxed and not upset.

Example An army officer who had just come back from a war complained he was extremely tense. The army doctor taught him to relax by placing him on a machine that measured how tight his arm muscle was and telling him to try to lower his muscle tension. He wasn't tense any more when he used this technique away from the doctor's office.

NAME: ______________________

SCHOOL: ______________________

GROUP: ______________________

UNDERSTANDING YOUR PET

Day 3

Overview

Understanding Your Pet

One of the things that psychologists have studied a lot is why animals behave the way they do. They also have examined ways to change animals' behavior. In this lesson, some of the things that psychologists have learned from these studies will be applied to people's pets.

Some animals seem much smarter than others. The first part of the lesson will describe two things that are important causes of how smart your pet might be. One of these is the health of your pet, and the second is how quickly your pet can learn new things.

In the next part of the lesson, you will learn about ways to train your pet using rules from psychology. One rule, called reinforcement, can be a good way to teach your new pet to do tricks and obey you. We'll also study a second rule that is called shaping. It, too, is useful in teaching your pet.

In spite of all your work, pets sometimes misbehave. The last major part of the lesson will explore two rules that psychologists have found are valuable to stop pets from misbehaving. One of the rules is familiar to you. It is punishment. The second rule is based on preventing your pet from misbehaving in the first place.

Worksheet #1

What Makes Your Pet Smart or Dumb

Health

- what is inherited from parents
- how nutritious the animal's diet is

Example Sheep herders have carefully bred their dogs from bright parents over many generations. When these dogs are also fed a healthy diet, they learn their duties very quickly.

Example The dogs that are exhibited at dog shows are usually very bright. These dogs are bred over many generations to have high intelligence. In addition, their owners make sure these dogs always have a very well balanced diet. This guarantees that the dog's nervous system develops properly.

How Quickly an Animal Learns

- depends on good teaching
- depends on what is inherited from parents

Example Police dogs are very smart. The pups are chosen from especially intelligent families. Then, they go through a special school for about 8 months to learn all the things they need to do.

Example Tim's dog knows a lot of tricks. The dog comes from a family of very smart dogs in general. And, Tim used all the psychology he knew to make his dog's training program very effective.

Worksheet #2

Psychology to Train Your Pet

Reinforcement

- giving a reward after your pet does something
- will result in the behavior happening more often

Example Kelly trained her hamster to jump over a deck of cards. First, she poked it to make it jump and then she gave it a food pellet. After lots of this, the hamster would jump over the cards whenever Kelly pointed her finger at him.

Example My aunt found that her budgy could be taught to sing more often when she rewarded his singing with a small cracker.

Shaping

- rewarding behaviors which are closer and closer to the behavior you want to teach
- will result in the behavior happening more often

Example I taught my cat to shake paws with me. First, I got her to lift one of her front paws just an inch. Then, I trained her to lift it up to her head. Next, I taught her to put her paw in my hand when I said, "Shake." Now, all I have to say is "Shake" and my cat does it.

Example A dog owner who wants to teach her dog to roll over might first reward her dog for lying on his side, then for rolling half-way over and finally for rolling all the way over. This would teach the dog to roll over more often.

Worksheet #3

How to Stop Your Pet From Misbehaving

Punishment

- doing something your pet dislikes
- decreases misbehavior

Example Larry's cat used to beg at the table. He didn't like this, so he shot the cat with a water pistol every time she begged. The cat didn't like water, and soon, she stopped bothering Larry at meals.

Example Sally's dog Tiny was in a terrible mess. For some reason, he chewed his tail until it would bleed. Sally's vet suggested she rub onion on the dog's tail so he would not like the smell of it. This really worked. Tiny stopped chewing his tail almost immediately. Soon it was healed.

Preventing Misbehaviors

- do something so the pet is unable to misbehave
- decreases misbehavior

Example Maria's cat always killed birds in the yard. To fix this problem, Maria tied a bell on its collar that frightened the birds away whenever the cat got close. After lots of failures to get any birds, the cat simply sat and watched the birds instead of killing them.

Example Whenever Mary came home, her dog would jump all over her. She was able to stop this by putting a box of dog biscuits in a flower tray just outside the front door. Now, just as she opens the door, Mary tosses a dog biscuit on the floor for her dog. Since the dog is eating the biscuit, it can't jump all over her.

NAME: ____________________

SCHOOL: ____________________

GROUP: ____________________

PSYCHOLOGY ABOUT YOUNG CHILDREN

Day 4

Overview

Psychology About Young Children

Young children often seem to behave in ways that don't make sense to us. Psychologists have studied why young children act the way they do, and this lesson is about some of their findings.

It is very common for babies to make funny noises, called babbling, and to cry. But do you know why they do these things? In the first major section of this lesson, we'll explore the reasons why babies use these behaviors.

The next part of the lesson will look at why young children think in different ways than you think. For instance, you will learn that children who are about six years old don't always see things in the same way you do. Also, young children at this age often can't understand why other people behave in certain ways toward them. You will learn some reasons why this happens.

Next, the lesson describes how young children can learn to avoid the very unhappy situation of being teased. One way that psychology can help here is by showing that sometimes it is best just to ignore the teasing. Another way to reduce teasing is to show that people who tease you will not be treated as nicely as people who don't tease you.

Worksheet #1

Baby Talk

Babbling

- sometimes used to get attention from parents
- often done for fun

Example Ann often babysits for the Martin's 4-month-old child. Whe baby makes lots of noises and seems to grin like he is talking to himself about something funny. But when he makes a noise that Ann thinks is her name, she always talks back to him.

Example A father believes his 7-month-old son can say "Daddy." When the baby is all by himself, he often just mumbles "ba-ba" or "goo-goo," smiling all the time. But when he says "da," his father rushes in as if his son has called him.

Crying

- sometimes used to get attention from parents
- can help the baby get extra air to breathe

Example We showed my baby brother some home movies last night. At first, he got really excited and out of breath when he saw our dog in the movie. Then he started to cry and Mom picked him up and rocked him in her arms.

Example A 10-week-old baby began to cry very loudly right in the middle of its nap. Its mother rushed into the nursery to see if he had fallen out of the crib. He hadn't, but may have been having a scary dream that made him so excited he needed to breathe more air.

Worksheet #2

Younger Children Think Differently Than You Do

Understanding the Way Things Look

- can't keep two things in mind
- can't convince the child he's wrong

Example My sister, who is six, said she wanted the smallest hamburger on the platter. She took one that wasn't very big around but was really fat. I tried to tell her another one that was slightly bigger around but thinner was the smallest one, but she wouldn't believe me.

Example Gerry, who is five, always complains that he gets less chocolate milk than his sister. His glass is short and fat and his sister's glass is tall and thin. His mother tells him that, while his sister's chocolate milk glass seems taller, he should remember that her glass is thinner. So there is the same amount in both their glasses.

Understanding Other People

- can't keep two things in mind
- can't see some one else's position

Example Five-year-old Cathy always wants her own way. She can't seem to understand that if she gives in a little this time, so I can have my way that I will give in next time for her.

Example Mark thinks it's unfair for the babysitter to send him to bed at 7:00. She tells him that she will get in trouble if he is not in bed by 7:00, but Mark doesn't seem to care about her problems. The only thing Mark sees is that he has to go to bed at 7:00.

Worksheet #3

How To Stop Young Children From Teasing

Ignoring

- showing them you don't care
- reduces teasing

Example Barb's brother used to tease her about her freckles. One day, Barb decided she just wouldn't pay any attention to this teasing any more. Pretty soon, her brother stopped teasing her.

Example The kids on Jeanne's block used to pull her long hair and then she would cry. Her older brother told her not to cry and to walk away whenever the kids pulled her hair. After a few weeks of trying this, Jeanne found that her hair was not being pulled.

Doing Nice Things

- doing nice things to people who don't tease you in front of those who do tease you
- reduces teasing

Example Lots of the kids at school would tease Walt because he couldn't see well even with his special glasses. One day, Art asked if Walt wanted some help reading a fuzzy ditto sheet and Walt said, "Hey, thanks - that's really nice." When the kids who used to tease Walt saw this, they wanted to help instead of teasing Walt.

Example Michael was always being teased by little kids in his neighbourhood because he was very short. When kids called him "Shorty" he would ask the other kids he was playing with to come swim in his pool. Soon, no one called him Shorty because they wanted to swim in his pool.

APPENDIX B

Illustrative Script Used in Producing Videotape Lessons for Studies II and III

INTRODUCTION

All videotapes for all of the 24 lessons (12 each for Sleep and Psychology) followed the same basic format that is illustrated in this Appendix. The teacher was seated next to a flip chart upon which the title of the lesson was printed. Four students sat in a semicircle in various arrangements, sometimes with the teacher in the middle and sometimes at one end of the arc. The teacher briefly introduced the topic, naming the two concepts to follow. Next, the first concept and its two defining attributes were presented, sometimes embellished by the elaboration content. Each concept name was written on the flip chart as it was presented. Then the two examples were presented for the first concept. A brief summary followed, with a transition to the next concept. The examples were presented either by the teacher (approximately 70 percent of the concepts) or by one of the students. The sources of information were randomly ordered over the various lessons.

The instructional stimuli were always presented by the teacher. The first consolidate instructional stimulus was always presented before the second concept was introduced. The compare-and-contrast instructional stimulus was presented at various times, but always after the second concept and its attributes had been presented. The second consolidate instructional stimulus was presented at various times after the second concept and attributes were discussed, sometimes before and sometimes after presentation of the compare-and-contrast instructional stimulus.

All videotapes were in color, and varied in camera angle and students' seating arrangement to enhance interest. Copies of the videotapes are available at cost from the principal investigators.

AWAKE OR IN LIGHT SLEEP

- involuntary body systems operating
- occurring in a cycle over 24 hours

A. Awake

- reflex behaviors are normal
- person is aware of events going on

....

Content for Elaboration

- voluntary systems operating (person can decide to move arm, leg, etc.)
- eyes usually open - sometimes closed
- heart rate and breathing varies

Example 1. John is talking to his mother at lunch, telling her about his soccer game. He jumps in his seat when the door slams. (*Presented by teacher*)

Consolidate Instructional Stimulus:

BEFORE WE GO ANY FURTHER, LET'S SEE IF EVERYONE IS CLEAR ABOUT THE TWO CHARACTERISTICS OF BEING AWAKE

Example 2. When watching a hockey game, Linda knows which team is wearing which colors. When her father calls her name loudly, she turns around automatically. (*Presented by teacher*)

B. In Light Sleep

- person's rate of breathing gets slower and steadier
- reflex behaviors are normal

Compare-and-Contrast Instructional Stimulus:

DOES EVERYONE KNOW HOW LIGHT SLEEP IS DIFFERENT FROM BEING AWAKE? HOW ARE THEY THE SAME? THINK ABOUT THAT.

……

Content for Elaboration:

- voluntary systems not operating
- person is unaware of surroundings
- imagined pictures that the sleeper is aware of
- eyes closed

Example 1. When we are just falling asleep, we begin to breath less often than when we're awake. But, if we start to roll out of bed or off the couch, we put out our hands to break a possible fall right away. (*Presented by student one.*)

Example 2. Gary knows that his little sister is asleep because she is breathing slowly. When he tickles her foot she immediately jumps up and screams. (*Presented by student two.*)

Consolidate Instructional Stimulus:

BEFORE WE LEAVE THIS LESSON, MAKE SURE YOU KNOW THE TWO IMPORTANT FEATURES OF LIGHT SLEEP.

APPENDIX C

Scripts Used in Training Group, Study II

These scripts are printed in two different fonts. Material in regular font depicts what students saw on the worksheets in their training packets (see Appendix A). Italicized materials were cues about procedures or information delivered orally by the trainer. These are positioned on the worksheet to show approximately the sequence in which the trainer delivered instructions in relation to information that students were attending to on their worksheets.

NAME: ____________________

SCHOOL: ____________________ Fill in

GROUP: E

Describe:

1. nature of research project
2. procedures
   a. M, W, F for 2 weeks
   b. each day: videotape lessons
      discuss how to think in ways that promote learning
      practice thinking strategy and how to show you're using it
      quiz items

      ... 2 lessons/day

      ... put yourself right in the classroom where the teaching is happening
3. set for videotape

Circadian Rhythms

Overview

Each day we go through a cycle. This cycle is called a circadian rhythm and ranges from high activity to low activity. Not only do we find these rhythms in the systems of our body, but they are also found in the way we feel.

... *remember, put yourself in the classroom and turn to the blue page, Worksheet #1.*

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- *Teacher has just asked you to think in a special way when he said ...*

(1) I'll show you what to think

(2) How can you show us that you're thinking that way

Worksheet #1

Circadian Rhythms (1A)

Repeat IS

(1) Repeat each major character to yourself twice

__Bodily Rhythms__

- each cycle is about 24 hours long
- relate to systems of the body

__Example__ If you took your temperature, it would be highest around late afternoon, then would fall to its lowest point near 4 or 5 a.m. Then it would rise again the next afternoon.

This example was one discussed in the lesson

__Example__ If you were to take your pulse in the afternoon, you would notice that it was higher than if you took it in the early morning.

(2) Read 1st example -- look for major characteristics to see how they make the example fit the definition of a circadian bodily rhythm.

(a) circle these parts

(b) make sure that both major characteristics are there

TURN PAGE
I'll show you exactly what I mean.

Worksheet #1

Circadian Rhythms (1A)

Bodily Rhythms

- each cycle is about 24 hours long
- relate to systems of the body

Example If you took your temperature, it would be highest around late afternoon, then would fall to its lowest point near 4 or 5 a.m. Then it would rise again the next afternoon.

(1) here's the 1st major characteristic of a circadian bodily rhythm

(2) you circle the 2nd and connect it to the characteristic

Example If you were to take your pulse in the afternoon, you would notice that it was higher than if you took it in the early morning.

What we've just done is completed the special way that you should think when the teacher gives you signals to make sure that things are clear. Let's review exactly how you should think and exactly how you indicate to us that you've been thinking that way.

1. *Read and try to memorize the two major characteristics of circadian bodily rhythms. Say them to yourself twice.*
2. *Read the first example on the worksheet to locate the parts of it that correspond to the major characteristics of circadian bodily rhythms.*
3. *As you read the example, circle the part of it that corresponds to each major characteristic of circadian bodily rhythms.*
4. *Draw a line that connects the circled parts of your example with its corresponding major characteristic listed above.*

The reason that you should think this way when the teacher gives you the signal telling you to make sure things are clear is that thinking this way will help you answer test questions. Turn the page and we will see a test question based on circadian bodily rhythms.

(1) *Read item - comment on "sugar"*

A. Scientists have found that the amount of sugar in your blood rises and falls at regular intervals. These changes in sugar concentration would be a circadian rhythm if they

system of the body

(2) *need to pick out 2nd major characteristic to answer*

a. affected your eating habits.

b. occurred every 12 hours.

c. occurred every 24 hours

d. changed how lively you felt.

(3) *These were exactly the bits of information the teacher wanted you to think about.*

Now that you have a bit of an idea about how you should think when the teacher asks if things are clear, let's return to the videotape and finish this lesson on circadian rhythms. First I'll show you the videotape, and then we'll go through how you should be thinking and how you would indicate to us that you were thinking that way. Turn to worksheet number two and let's watch the tape.

(1) *Stop at IS. Teacher wants you to think in that special way we've just discussed*

Worksheet #2

Circadian Rhythms (1B)

Psychological Rhythms

- concerns how people behave
- each cycle is about 24 hours long

Example Studies of accidents at factories show that workers are more alert around 5 p.m. each day.

Example Little babies are usually cranky and cry a lot in the morning, but they are much more friendly around lunchtime.

Review the 4 steps:

1. *Read and try to memorize the two major characteristics of circadian psychological rhythms. Say each twice to yourself.*
2. *Read the first example on the worksheet to locate the parts of it that correspond to the major characteristics of circadian psychological rhythms.*
3. *As you read the example, circle the part of it that corresponds to each major characteristic of circadian psychological rhythms.*
4. *Draw a line that connects the circled parts of your example with its corresponding major characteristic listed above.*

(2) *Now, let's look again at what you should write on the worksheet to tell us you were thinking like you should.*

Worksheet #2

Circadian Rhythms (1B)

Psychological Rhythms

- concerns how people behave
- each cycle is about 24 hours long

Example Studies of accidents at factories show that workers are more alert around 5 p.m. each day.

Example Little babies are usually cranky and cry a lot in the morning, but they are much more friendly around lunchtime.

(1) here's the 1st major characteristic of circadian psychological rhythms

(2) find the 2nd

(3) Now, try to answer the quiz item on the next page.

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behavior *cycle about 24 hours long*

B Nancy always feels sleepy around 3 or 4 p.m. each day no matter what. This is an example of which of the following?

a. A psychological circadian rhythm.

b. The periodic release of serotonin.

c. Disturbed sleep patterns.

d. Somnambulism.

These were exactly the bits of information the teacher signaled for you to think about.

Now I'm going to give you a chance to practice this by yourself, and then I will go over it with you. Here is a new lesson about measuring sleep. I will play the lesson for you on the TV, and when the teacher gives you the signal to make sure that things are clear, I will stop the tape. When I stop the tape, on your own, make sure that (1) you think in the ways that we have told you to and that (2) you draw the appropriate indications of your thinking on the worksheet. I'll tell you exactly when the teacher is going to signal you like this, and I'll stop the videotape for a few seconds while you do your thinking and your writing on the worksheet. Any questions?

(1) Read overview

(2) Play part A of videotape two; stop at IS; procedure is:

(1) read overview
(2) watch lesson - put yourself in the lesson
(3) think; write; review the 4 steps
(4) answer 2 quiz items

Measuring Sleep

Overview

Scientists who study people's sleep have to measure it somehow. They do this with machines that record either brain waves or heart beat patterns on graph paper. These measurements are made by attaching small metal disks called electrodes to sleepers' skin while they sleep in a laboratory. These electrodes help measure the level of electrical activity in the sleeper's body.

- *stop at IS*
- *turn to worksheet #3*

remind students to:

- think

- write

Worksheet #3

Measuring Sleep (2A)

Measuring Sleep by Electrical Activity in the Brain

- equipment is used in laboratory
- produces a pattern of zig-zag waves called an E.E.G.

Example One basic shape of brain waves during sleep is about 1 to 4 tall spikes per second. Scientists usually observe this shape using their laboratory equipment after the person has been asleep in a lab for an hour or more.

Example Just after falling asleep, people's brain waves have about 10 ripples per second. Doctors have found this by using machines in rooms designed to do research on sleep.

- turn to worksheet #4

- stop at IS

- *think*

- *write*

Worksheet #4

Measuring Sleep (2B)

Measuring Sleep by Electrical Activity in the Heart

- records the number of beats per minute called an E.K.G.
- equipment used in laboratory

Example To measure E.K.G., a set of electrodes is placed on a person in the laboratory. It makes a picture on graph paper that shows that the heart slows down as the person falls asleep.

Example Researchers in sleep laboratories often see that an E.K.G. shows an increased heart rate as a person begins to dream.

- *turn past green sheet to white sheet with quiz items.*

- *circle letter corresponding to correct answer*

A A sleep scientist was measuring aspects of sleep. He used a machine in his laboratory that recorded a zig-zag pattern of electrical activity in the sleeping person's body. The part of the body being measured probably was the

a. blood vessels

b. heart

c. muscle system

d. brain

B A measure of sleep that records a sleeping person's heart rate is

a. an OMG

b. an EKG

c. a MOI

d. an EEG

- *go over worksheet #3 and #4*
- *give answer; relate to the thinking strategy*

  review of today -- signal / 4-steps / answering test questions

  preview next time
- *collect papers*

NAME: ______________________

SCHOOL: ______________________

GROUP: ______________________

(1) *review thinking strategy:*

READ 1. *read and memorize major characteristics of the concept -- say twice to yourself*

THINK 2. *read 1st example on worksheet: analyze to identify the major characteristics in parts of the example.*

WRITE { 3. *circle parts of example corresponding to major characteristics*

4. *connect circled parts to major characteristics* }

... *helps to answer quiz questions because you're reviewing exactly the information you need to get it right.*

(2) *remember: imagine you're in the classroom on TV*

---

(3) *teacher's signal to use thinking strategy:*

... *15 seconds!*

-- *give examples of length*

make sure you understand the major ideas about x

make sure x is clear

do you see what x is supposed to be like?

do you know the 2 important features of X?

think hard about the key things about X.

(4) *now, let's do 1st lesson*

---

(1) *watch and use thinking strategy* (2) *answer quiz* (3) *go over thinking strategy and quiz*

*** WAIT FOR SIGNAL

read:

Awake or in Light Sleep

Overview

In this lesson, we explore ways to tell whether a person is really awake or sleeping lightly. Both conditions occur over each day's 24-hour cycle, and the body's uncontrollable activities or reflexes keep working in both conditions. People who are awake are aware of things that happen around them. When they are sleeping lightly, though, their reflexes and uncontrollable activities slow down.

Set for videotape:

(1) *put yourself right in the class*

(2) *look for the teacher's signal to use the thinking strategy*

WAIT for signal to use thinking strategy

Worksheet #5

Awake or in Light Sleep (3A)

Awake

- reflex behaviors are normal
- person is aware of events going on

Example Walking through a room in the dark, Todd can hear the cars outside his house. If he should step on the point of a pencil, he would move his foot back right away without thinking about it.

Example When watching a hockey game, Linda knows which team is wearing which colors. When her father calls her name loudly, she turns around automatically.

(1) *review 4 parts of thinking strategy*

(2) *give answer for circle and line*

(3) *check for agreement*

A Jerry is lying on the sofa with his eyes closed and the radio is playing. His mother asks him if he wants a hot dog for lunch and he says "Sure, do we have any potato chips?" We know that Jerry is awake because

Jerry is aware of what's for lunch and knows potato chips go with hot dogs.

a. his reflex behaviors are operating correctly

b. he is not rapidly fluttering his eyes

c. his heart beat is not slow

d. he is aware of what is happening around him.

(1) *describe how knowing major characteristic helps answer question.*

---

(2) *set for 2nd part of lesson*

... *NOTE - another kind of signal for a thinking strategy we'll learn about tomorrow - ignore it for now - I'll tell you*

-- *identify on tape IS for 2nd thinking strategy*

a. *put yourself in the class*

b. *watch for signal to use thinking strategy and do it*

c. *give example for 15 sec. duration*

Worksheet #6

Awake or in Light Sleep (3B)

In Light Sleep

- person's rate of breathing gets slower and steadier
- reflex behaviors are normal

Example Mike knew his brother was asleep because he was breathing deeply only every 15 seconds or so. But, when he dropped the jar of jelly on the floor, Mike's brother was startled and jumped up.

Example When we are just falling asleep, we begin to breathe less often than when we're awake. But, if we start to roll out of bed or off the couch, we put out our hands to break a possible fall right away.

(1) ask for description of 4 things in thinking strategy

(2) give answer for circle and line

(3) check for agreement

B You have been watching TV with your family for a half hour. You notice that your dad's eyes are closed and he is breathing more slowly and steadily. The cat jumps on your dad's chair and he gets startled. Your dad has probably been

a. in light sleep.

b. experiencing REM sleep

c. awake.

d. in deep sleep.

breathing goes down

reflex normal

2 major characteristics of light sleep

(1) describe how knowing 2 major characteristics helps answer question

---

(2) set for practice exercise

---

a. read overview

b. turn to worksheet

NOTE: both topics now in one lesson

c. watch tape and learn

d. use thinking strategy

-- I'll tell you when the other signal occurs

e. answer quiz questions

f. we'll go over the worksheet and quiz questions

... put yourself in the lesson

Times When You Dream

Overview

This lesson is about dreams which are a series of visual images or mental pictures. Some dreams occur in light sleep when your eyelids are not moving. Other dreams occur in deep sleep when your eyelids move.

Worksheet #7

Times When You Dream

(4A) Dreams in Light Sleep

- occur as you fall asleep or wake up
- little or no movement of eyelids
- seems like you are living the events rather than just watching them

Example After a long drive to Vernon, Sue begins to nap. Sue's father sees her eyes and body are very still. She is dreaming about how cold it felt when she spilled her coke on her lap.

Example Mike has fallen asleep again after his alarm went off. He is perfectly still. He dreams about yesterday's gym class, and then fooling around during the movie in science class. He'll wake up again in a moment.

(4B) Dreams in Deep Sleep

- eyelids flutter rapidly, called REM
- seems like you are living the events rather than just watching them
- happen only after sleeping at least 1½ hours.

Example Around 2 in the morning, Henry's eyes are moving a lot as he dreams about playing professional hockey. He feels a hard check, then falls down and slides 10 metres before the whistle blows.

Example Your dog starts to bark, move his legs and blink after he's been sleeping for a few hours. He's probably chasing the neighbor's cat in his dreams.

(1) *ask for description of thinking strategy*
(2) *give answers for circles and lines*
(3) *check for agreement*

A Jan woke in the morning, then fell back to sleep. His eyes are very still and he is dreaming about going swimming. He can feel the cool water and the warm sun. This pattern is an example of

3 major characteristics of dreaming in light sleep

a. a circadian rhythm

b. dreaming in light sleep

c. dreaming in deep sleep

d. a REM dream

B If you wanted to watch someone's eyes in REM sleep, you should

one of the major characteristics of dreaming in deep sleep

a. wait until the person is in a state of relaxed wakefulness.

b. watch the person as soon as he falls asleep

c. wait until the person has been asleep for about 2 hours.

one of the major characteristics of dreaming in deep sleep

d. use an EEG to record sleeping times.

(1) describe how thinking strategy helps

---

(2) set for Friday

---

a. use this thinking strategy when signaled -- practice some more

b. learn another thinking strategy to use with the other signal

DAY 3

NAME: ______________________

SCHOOL: ______________________

GROUP: ______________________

(1) *thinking strategy #1 when teacher gives signal*

---

a. *wait for signal -- other things in the lesson may be on quiz*
   ... give alternative phrases of IS

b. *use thinking strategy*

   1. *repeat each major characteristic twice*
   2. *read 1st example and look for parts corresponding to major characteristic*
   3. *circle parts*
   4. *connect to major characteristic*

c. *be quick -- only 15 seconds!*

(2) *today we'll begin to learn another thinking strategy*

---

a. *when teacher gives 2nd kind of signal, I'll stop the tape and explain the 2nd thinking strategy*

b. *then we'll look at the kinds of quiz questions thinking strategy #2 helps you to answer*

c. *use thinking strategy #1 by yourself when the teacher signals you*

   1. *think, read, write*
   2. *we'll answer quiz questions like before*
   3. *go over worksheet and quiz questions*

(3) *read overview*

Remembering and Forgetting Dreams

Overview

Everybody remembers some dreams and forgets others. People who are better at remembering things in general also tend to remember dreams well. And, people who dream more than others have more dreams to remember than people who dream less. Many of the dreams you tend to remember occur just before you wake up. And, some dreams you tend to forget were about events that would make you very upset.

set for videotape

---

1. *put yourself in the lesson -- pay attention to ALL of it*
2. *wait for signal to use thinking strategy #1*
3. *I'll interrupt tape at 2nd kind of signal to teach thinking strategy #2*

-- stop at IS for compare-and-contrast ICR

Worksheet #8

Remembering and Forgetting Dreams

Dreams you tend to remember

- about events important to you
- usually occur near to time you wake up

Example A wife heard her husband mumbling loudly in his sleep about 6:30 a.m. At breakfast, the husband told about a dream in which he had been promoted to vice president at work.

Example Tommy told his sister that he had a dream about coming home from the hospital last night. The nurse said, "I thought so. I saw you with a big smile on your face just before you woke up around 7 this morning."

Dreams you tend to forget

- usually about things that make you very unahppy or embarrassed
- about events important to you

Example A young girl went to the school counselor because she was unhappy about something she couldn't remember. The counselor helped her recall a very bad dream where she was playing in a car and accidentally ran over her puppy.

Example A man at his doctor's complained of being upset. After talking a long while, he remembered a dream about breaking a vase that his great grandmother had given him long ago. It was an especially favorite vase because it held the flowers she gave him when he got married.

thinking strategy #2

---

(1) signal was "..."

(2) comparing and contrasting means to look for major characteristics that are =
and to look for major characteristics that are ≠

Remember *(3) thinking strategy has 3 parts*
a. say each major characteristic to yourself - try to remember it from
Write *the lesson rather than simply reading it*
Repeat *b. 0 the ones that are equal, X the ones not equal*
answer *c. repeat to yourself the answer: dreams I tend to remember and those*
I tend to forget are the same because both .../different because ...

Compare and contrast the characteristics of dreams you probably forget with dreams you are likely to recall

They are both the same because they are about things that happen to you that are important. They are different because you usually forget dreams that are about events that embarrass you or make you very unhappy, and you tend to remember dreams that occur just before you wake up.

You circled these

You Xed these

repeating whole answer = what you have to write

describe how thinking strategy #2 helps answer quiz questions like this

---

... *exactly the things you do in your mind and on the worksheet are the things needed to answer these kinds of quiz questions*

... *back to VT and finish lesson; use thinking strategy #1 when teacher gives you the signal*

A Don was having a dream about buying his first motorcycle on his 16th birthday. He would probably remember this dream if

important
.. one major characteristic

- a. he was in REM sleep
- b. there were no other dreams to mix up his memory
- c. he'd had a sound night's sleep.
- d. he woke up in about 10 minutes

occur near falling asleep or waking up
.. 2nd major characteristic

B Fran had a dream about the time she lost her mother's wedding ring. Fran probably wouldn't remember this dream because

important

- a. it is about a very unhappy topic
- b. the dream wasn't very long
- c. most dreams are forgotten
- d. she couldn't afford to buy her mother a new ring.

unhappy or embarrassing

set for practice session:

---

1. *review thinking strategy #1 & signal* *__WAIT__ for signal/*
2. *review thinking strategy #2 & signal* *work __QUICKLY__* — *remember*
    - a. *try to remember each major characteristic __from the lesson__* — *write*
    - b. *O and X same/different major characteristics* — *repeat*
    - c. *repeat whole answer to yourself*
3. *procedure*
    - a. *read overview*
    - b. *watch tape : (ALL OF IT)* *I'll cue you for thinking strategy #2 and stop tape momentarily. Use thinking strategy #1 by yourself.*
    - c. *check short essay quiz question by reading*
    - d. *do multiple choice quiz question*
    - e. *go over worksheet and check quiz questions*

Theories About Why Sleep is Useful

Overview

This lesson is about theories of why animals sleep. A theory is a set of ideas which help scientists invent experiments. We are going to speak about one theory which explains why animals sleep different amounts of time. This theory is about how sleeping adapts to an animal's life. The other theory we are going to discuss says that animals sleep to refresh their body and dreams help refresh the brain.

set

---

1. *put yourself in the lesson*
2. *wait for signals to use the thinking strategies*

-- pause tape at IS_{com} *and cue students' responses*

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Worksheet #9

Theories About Why Sleep is Useful

Theories About Adapting to Life

- explain why different animals sleep different amounts of time
- explain why animals sleep

Example Gorillas sleep about 14 hours a day, but deer sleep only about 2 hours a day. Gorillas don't need to spend lots of their time searching for food, but deer must move around and avoid predators like wolves.

Example An elephant sleeps only several hours a day, while a baboon can sleep all through the night. The elephant needs lots of awake time to find enough food. A baboon can easily find plenty of food in nearby trees and bushes.

Theories About Refreshing the Body

- explain why animals sleep
- deep sleep with dreams helps refresh the brain

Example After a lot of exercise during the day, cats spend lots of time in deep sleep. During dreams, more blood was pumped to the brain bringing more oxygen to it.

Example As people get very old, they spend less of their sleep time in dreaming. Since about 5% of their brain cells have died, they need less dream time to refresh mental activities.

review thinking strategy #1 : *repeat major characteristics twice*
read and analyze 1st example
circle and connect example with
major characteristics

review thinking strategy #2 : *remember major characteristics*
0 and X on worksheet
repeat whole compare and contrast
answer to signal

What are the similarities and differences between theories of sleep about adapting to life and theories of sleep about refreshing the body?

Ideal Answer

These two theories are similar because they both explain why animals sleep. They are not alike because the theory about adapting to life explains why different animals sleep different amounts of time, but the refreshing the body theory doesn't explain this. The refreshing the body theory claims that deep sleep with dreams helps refresh the brain.

things you circled the same

things you xed different

extra info - one of the characteristics

describe how thinking strategy #2 helps

A. One of the major characteristics of adaptive sleep theory is that it

a. shows how chemicals influence the sleep cycles.

b. explains why a lion would sleep more than an antelope.

one of major characteristics

c. predicts when an animal won't need sleep.

d. does not help sleep scientists do experiments about sleep.

B. Dolphins have brains that are much larger than the brains of horses. Theories of sleep based on the principle of refreshing the body would predict that

based on a major characteristic about sleep needed proportional to size of brain

a. horses and dolphins would sleep about the same amount of time each day.

b. horses would sleep more than dolphins.

c. dolphins would sleep more than horses.

d. neither kind of animal would sleep very much.

review how thinking strategy #1 helps to answer multiple choice quiz questions

---

set for next time

---

1. *practice using thinking strategies #1, and #2 in just 15 seconds*
2. *you'll begin to write out answers to short essay quiz questions*

DAY 4

NAME: ____________________

SCHOOL: ____________________

GROUP: ____________________

(1) overview for today

a. review thinking strategy #1 and use for multiple-choice quiz questions

b. review thinking strategy #2 and use for short essay quiz questions

c. practice in lesson on "Drugs and Sleep: : read short essay quiz question answer

d. practice in lesson on "Chemicals in the Brain and Sleep" : you write short essay

e. schedule for remainder of research

   1. practice Wed.
   2. real quiz Fri.
   3. next week: watch 20 min. of lessons each day
      test on Friday covering entire week

(2) thinking strategy #1

a. signal

b. 4-steps -

   1. repeat each major characteristic twice
   2. read and analyze example to find parts corresponding to major characteristic
   3. circle parts
   4. connect with major characteristic

c. use -

   1. multiple choice quiz questions usually have:
      - example with characteristics in it - you identify concept
      - name of concept - you choose right characteristic

(3) thinking strategy #2

a. signal

b. 3-steps -

   1. try to remember each characteristic & remember which are same, which different
   2. O, X on worksheet
   3. say whole answer that compares & contrasts concepts to yourself

c. use - exactly what you do for short answer essay

Drugs and Sleep

Overview

This lesson is about how drugs affect the length of time we sleep. We are going to discuss drugs which make us sleep by lowering our bodily functions. Also, we are going to speak about drugs which raise our bodily functions and prevent us from sleeping.

set for videotape

---

(1) *put yourself in the lesson - pay attention to ALL of it*

(2) *watch for signal that cues you to use thinking strategy #1*

watch for signal that cues you to use thinking strategy #2

15 seconds to do it

(3) *after lesson*

  a. *read a perfect answer to short essay question*
  b. *take multiple-choice quiz*
  c. *go over worksheet*
  d. *go over multiple-choice quiz*

Worksheet #10

Drugs and Sleep

Drugs that Bring on Sleep

- not always prescribed by doctors
- lowers level of body functions to bring on light sleep

Example Many people drink alcoholic beverages during dinner. These drinks often reduce the person's rate of breathing and their pulse, while also making them drowsy.

Example Recent scientific studies have shown that drinking warmed milk can help bring on sleep. It helps the body release a chemical that decreases the amount of activity in the brain.

Drugs that Keep People from Getting to Sleep

- not always prescribed by doctors
- increase activity in systems of the body

Example A chemical in coffee, called caffeine, is drunk by a large number of people. By speeding up heart rate, this chemical helps people stay awake at night.

Example Not many children know that many soft drinks, like Coke, contain a chemical that is a stimulant. It can keep you awake because it makes you breathe faster and increases your heart rate.

Compare and contrast drugs that bring on sleep and drugs that keep people from getting to sleep.

Ideal Answer

Some of the drugs that bring on sleep and some that keep people from getting to sleep are not prescribed by doctors. They are different because drugs that bring on sleep lower the levels of body functions so that light sleep starts, but drugs that keep people from falling asleep increase the levels of activity of body systems.

review thinking strategy #2

---

(1) *signal is ...*

(2) *3-steps*
  - a. *try to remember characteristics from the lesson: same/different*
  - b. *0, X on worksheet*
  - c. *say whole answer that compares and contrasts the concepts to yourself*

(3) *relate to short essay question*

A. Some foods or drinks, like warm milk, help people fall asleep at night. This happens because drugs in these foods

- a. make people dream more so they will sleep more.
- b. slow down body functions, which helps bring on sleep.
- c. speed up body functions so that people get tired.
- d. cause REM sleep, which causes people to sleep more deeply.

B. George drinks three Pepsies every night while watching TV. He probably has trouble falling asleep because drugs in some soft drinks

- a. interfere with dreaming in deep sleep in the middle of the night.
- b. interfere with circadian rhythms and cause people to sleep at the wrong time.
- c. cause people to stay in light sleep.
- d. speed up body activities which tends to keep people awake.

review thinking strategy #1

---

(1) signal is ...

(2) 4-steps -

- *a. repeat each major characteristic twice to yourself*
- *b. read example to find parts of it that correspond to each major characteristic*
- *c. circle parts*
- *d. connect with major characteristic*

(3) relate to multiple-choice questions

- *a. in these 2, given name of concept in question -- you choose characteristic*
- *b. another kind: gives characteristics in question -- you choose name of concept*

Chemicals in the Brain and Sleep

Overview

For today, we are going to discuss some of the natural chemicals found in the brain which affect sleep. These chemicals affect the way we feel and behave. Some chemicals found in the brain help us to sleep; we will call these facilitating chemicals, while other chemicals tend to keep us awake; we will call these inhibiting chemicals.

set for videotape

---

(1) *put yourself in the lesson - pay attention to ALL of it*

(2) *watch for signal for thinking strategy #1*
watch for signal for thinking strategy #2 *15 seconds*

(3) *after lesson -*
- a. *you write short essay answer*
- b. *take multiple-choice quiz questions*
- c. *go over worksheet*
- d. *go over short essay answer*
- e. *go over multiple-choice quiz questions*

Worksheet #11

Chemicals in the Brain and Sleep

Facilitative Chemicals

- chemicals made in the body
- encourage sleep

Example A chemical called serotonin is made in your brain in an area called the raphe. It is released by the brain to help you get to sleep.

Example Scientists have found that giving animals a shot of a chemical called A.C. can put them to sleep in a few seconds. A.C. is made in your body where the back of the skull meets your neck.

Inhibiting Chemicals

- keep you awake
- chemicals made in the body

Example A gland on your kidney makes a chemical called adrenalin. When scientists give sleeping animals a shot of this chemical, they usually wake up very quickly.

Example In your body, a chemical called M.O.I. tends to reduce the effects of other chemicals that put you to sleep.

There are two kinds of chemicals in the brain, facilitative chemicals and inhibiting chemicals, that are related to sleep. How are they the same and how are they different?

review thinking strategy #2

- *(1) signal is ...*
- *(2) 3-steps*
    - *a. try to remember characteristic from the lesson: same/different*
    - *b. 0, X on worksheet*
    - *c. say whole answer to yourself*
- *(3) relate to short essay question*

A. Facilitative chemicals in the brain affect people by

- a. helping them fall asleep
- b. making them stay awake
- c. starting REM sleep
- d. stopping reflex behaviors

B. The chemical called N.A. is made by your body. If it is called an inhibiting chemical, it

- a. doesn't affect psychological rhythms
- b. slows down your EEG
- c. keeps you from falling asleep
- d. increases dreams in deep sleep

review thinking strategy #1

---

(1) *signal is ...*

(2) *4-steps -*
  - a. *repeat each major characteristic to yourself twice*
  - b. *read example to find parts that correspond to each major characteristic*
  - c. *circle parts*
  - d. *connect to major characteristic*

(3) *relate to multiple-choice quiz questions -*
  - a. *concept name in question, you choose characteristic for answer (like A, B)*
  - b. *one/both characteristics in question, you choose concept name*

NAME: ______________________

SCHOOL: ______________________

GROUP: ______________________

(1) *overview*

a. *review thinking strategy #1 : parts, signals, use with multiple choice questions*

b. *review thinking strategy #2 : parts, signals, use with short essay questions*

c. *practice in lessons on*

1. *People's Sleeping Problems*
2. *What Happens When You Don't Sleep*

d. *Friday - watch 2 lessons and take test*

(2) *thinking strategy #1*

a. *signals*

b. *4-steps : repeat, analyze, circle, and connect*

c. *kinds of multiple-choice questions*

(3) *thinking strategy #2*

a. *signals*

b. *3-steps : remember, O & X, form answer mentally*

c. *short essay question*

(4) *general*

a. *pay attention to all the lesson : content and signals*

b. *wait for signals - that way you can pay attention to all the lesson*

c. *work quickly when signal is given*

d. *don't forget the thinking parts to the strategies: they are most important*

People's Sleeping Problems

Overview

Often people have problems with their sleeping to the extent that their sleep problems cause them trouble. Some people have trouble getting to sleep. We call this insomnia. Other people try to act out their dreams by sleep walking.

set for videotape

---

1. remember the points
    a. attend
    b. wait
    c. work quickly
    d. use thinking strategies
2. watch lesson
3. write short-essay
4. take multiple-choice
5. go over worksheet, short-essay, multiple-choice

Worksheet #12

People's Sleeping Problems

Insomnia

- difficulty in getting to sleep or staying asleep
- must seriously interfere with daily life

Example A 30-year old man complained to his doctor that he could sleep only a few hours each night. He said this made him so tired that his boss might fire him for not working hard.

Example A 7-year old boy could not sleep in the bedroom where a thief had broken into his house. Because he was always tired, he began to get poor marks at school.

Sleep Walking

- must seriously interfere with daily life
- may be acting out a dream

Example A wife kept getting calls from the neighbors when her husband sung while sleepwalking in the hall of their apartment. Several times, people called the police. The husband thought he was delivering singing telegrams.

Example A young girl often walked in her sleep believing she was playing hide and seek with her cat. She chipped a tooth and broke her finger by falling over furniture.

review the thinking strategies

---

1. *emphasize thinking parts*
2. *thinking strategy #1 : repeat, analyze, circle, connect*
3. *thinking strategy #2 : remember, 0 and X, form answer mentally*

In what way are insomnia and sleep walking alike? How are they different?

both must interfere seriously with daily life to be called insomnia or sleepwalking

insomnia is difficulty in getting to sleep/staying awake

sleep walking may involve acting out a dream

A. Several weeks after Nancy had escaped a fire in her aunt's house, she could not sleep well throughout the night. She was very cranky during the day, and was sent to the principal's office for the first time this year. Nancy probably has

a. hypersomnia

b. somnambulism

c. sleeping sickness

d. insomnia

B. Peter's parents often found him sitting on the floor, sound asleep and playing with a toy. When Peter awoke as he was put back into bed, he said he was dreaming about playing in a really neat sandbox. Peter wouldn't be called a sleep walker because

a. his activities didn't disturb his life very much

b. he never really walked around while asleep

c. he was dreaming while playing on the floor

d. he woke up as his parents put him to bed

What Happens When You Don't Sleep

Overview

In this small lesson we are going to talk about what happens when people don't sleep. We are going to talk about people who don't sleep at all for a few days, as well as people whose sleep is interrupted frequently.

set for videotape

---

1. *pay attention to ALL of the lesson*
2. *WAIT for signals*
3. *work quickly when signal is given*
4. *don't forget thinking parts to the strategies*
5. *same procedure as last time*

Worksheet #13

What Happens When You Don't Sleep

Staying Awake for a Very Long Time

- makes animals and people act strange
- no sleep for several days or more

Example A scientist studied a man who did not sleep for five days. The man said he tried to help a woman out of the rain by opening his refrigerator door. The man insisted the woman was real.

Example A dog was not allowed to sleep for a week. He would not let his owner pet him, and sometimes howled at his food.

Not Getting a Full Night's Sleep

- sleep is disturbed often so sleeper wakes up
- makes animals and people act strange

Example A monkey was woken up every three hours. After a week of this, she stopped cleaning herself and spit all the other monkeys. A few good nights of rest cured her, however.

Example A mother who gets up several times a night to take care of a new baby often is hard to get along with the next day. She may even not want to take care of the new baby who she spent time with during the night.

review thinking strategies

1. *emphasize thinking parts*
2. *thinking strategy #1 : repeat, analyze, circle, connect*
3. *thinking strategy #2 : remember, 0 and X, form answer mentally*

Compare and contrast staying awake for a very long time and not getting a full nights sleep.

both kinds of problems can make you act strange

you must stay awake for several days to be considered awake for a very long time

not getting a full night's sleep means being waked up during the night

A. Larry complained to his doctor that he could hear his radio even when it wasn't on and that he felt small drops of water always falling on his hands. It is likely that Larry

a. has been skipping light sleep and going directly to deep sleep.

b. was once infected with malaria that disturbs his sleep habits.

c. has not slept in several days or more.

d. would not have dreams during tonight's sleep.

B. Mr. Danat's wife usually began to kick or hit lightly as she started to dream in her sleep. To break her of this habit, Mr. Danat began to wake her up each time she did this. Mrs. Danat

a. probably has a short REM period.

b. probably will be irritable this week

c. is a sleep walker that doesn't actually get out of bed.

d. will be cured of her thrashing about using this method.

overview Friday

APPENDIX D

Essay and Multiple - Choice Tests
for Studies II and III

Name ______________________________

School ______________________________

Group ______________________________

Sleep Tests

Describe the similarities and differences between hypersomnia and narcolepsy.

Compare and contrast fake hibernation and true hibernation.

Name ____________________

School ____________________

Group ____________________

1. Beavers sleep through the winter staying warm in their dens. They occasionally wake up to eat bark and branches they've stored in the den for the winter. Beavers are

   a. insomniacs.

   b. real hibernators.

   c. fake hibernators.

   d. cold blooded.

2. Harriet's mother has a problem with her thyroid gland and she gets very sleepy. Her doctor said that she probably has

   a. insomnia.

   b. hypersomnia.

   c. narcolepsy.

   d. sleeping sickness.

3. Sally, who just turned 16, has begun to fall asleep rapidly at odd times during the day. Her mother has the same problem. It is likely that Sally has

   a. narcolepsy.

   b. insomnia.

   c. hypersomnia.

   d. sleeping sickness.

4. Toads sleep through the winter like many other animals. If the toad is a true hibernator, it

   a. will live off body fat.

   b. can survive even if it gets frozen for a while.

   c. may awake once or twice to eat.

   d. will lower its heart rate drastically.

5. Patrick has hypersomnia. Which of the following is true?

   a. Patrick has a problem with one of the systems in his body.

   b. One of Patrick's parents had sleeping sickness before Patrick was born.

   c. There are only very few other people with Patrick's problem.

6. Some animals slow down their body's processes and lower their temperature during the winter when food is not available. These animals are

   a. fake hibernators.

   b. real hibernators.

   c. narcoleptics.

   d. REM sleepers.

7. A veterinarian told Tom that his dog had narcolepsy. The veterinarian knew this because the dog fell asleep uncontrollably and

   a. had a problem with his blood system.

   b. had a bad case of insomnia.

   c. the dog's mother had narcolepsy.

   d. had too much N.A. in its body.

8. Which of the following would be true of a fake hibernator?

   a. It would be a cold blooded animal.

   b. It would lower its body temperature a great deal.

   c. It would sleep to decrease its need for food.

   d. It would slow down chemical reactions in its body.

Name ____________________

School ____________________

Group ____________________

Psychology Tests

Compare and contrast modelling with peer pressure as ways that influence how you behave around other people.

In helping you to feel better about yourself, how are stopping your thoughts and keeping yourself busy the same and different?

Describe the similarities and differences between reinforcement and shaping in training a pet.

Babbling and crying are two ways that babies communicate with other people. How are these two ways to communicate alike and different?

Name ____

School ____

Group ____

1. Carol is teased a lot about the wart on her hand. One way she can get the kids to stop teasing her is to
   a. use peer pressure to motivate the kids.
   b. not pay any attention when the kids tease her.
   c. make sure the kids know that teasing makes her sad.

2. Andy's 5-year old sister was playing with clay. Andy first made a ball out of it, then rolled it thin like spaghetti. His sister cried because she thought Andy stole some of her clay.
   a. Andy could stop her crying by breaking the spaghetti-shape in two.
   b. Andy's sister would stop crying if Andy told her that he hadn't stolen any clay.
   c. Andy should re-roll the clay into a ball and then show his sister that no clay disappeared to convince her.
   d. Andy probably can't convince her that no clay disappeared no matter what he says or does.

3. Phil wants to stop his dog from misbehaving. If he punished the dog whenever he misbehaves, Phil might
   a. reinforce him when he is quiet.
   b. do something that the dog doesn't like.
   c. shape the dog by talking to him.
   d. take him for walks after dinner.

4. Dr. Newton had just bought a baby dolphin for the acquarium's water show. To make sure that the dolphin grew up to be as smart as possible, Dr. Newton should
   a. let it play with other dolphins only a few hours a day.
   b. motivate the dolphin to learn by keeping it hungry.
   c. be sure the dolphin stays in excellent health.
   d. keep the dolphin away from all the other dolphins.

5. Tim really hates to wash his parent's car every weekend. If he decided to get this job done by giving himself an extra piece of pie, when should he eat the pie?

   a. Just before washing the car.

   b. The Thursday or Friday before a weekend.

   c. Right after washing the car.

   d. After dinner on Mondays or Tuesdays.

6. Some people act like the people around them because other kids directly influence what they do. This is called

   a. peer pressure.

   b. modelling.

   c. thought stopping.

   d. shaping.

7. When babies communicate, one of their reasons is to get attention. If another reason is simply to enjoy themselves, babies are

   a. articulating.

   b. exploring.

   c. exercising.

   d. babbling.

8. Kevin is a big basketball fan. He had arranged for his bigger brother to take him to the university basketball game on Fridays, but only if Kevin finished his math homework in Friday's study period. Kevin is

   a. having his brother motivate him.

   b. making use of peer pressure.

   c. shaping his bigger brother's behavior.

   d. using math homework as a reward.

9. Some people do not become embarrassed because they have pictures in their minds of doing things really well. The procedure they are using is

   a. biofeedback training.

   b. imagining about themselves.

   c. thought stopping.

   d. relaxation thinking.

10. Bryan's dog digs up the neighbour's garden. He gets there crawling under the fence. If Bryan put a board across the bottom of the fence, he would be

    a. shaping the dog's misbehavior.

    b. punishing the dog's misbehavior.

    c. reinforcing the dog's misbehavior.

    d. stopping the dog's misbehavior.

11. When Marty would get really upset about her piano lessons, she would yell in her mind, "enough". This would probably

    a. help her make a mental image of playing well.

    b. make her less embarrassed if she played poorly.

    c. stop her from thinking about playing poorly.

    d. not help her very much when she played.

12. Infants often cry to get attention. Another major reason they cry is to

    a. breathe more oxygen.

    b. exercise their throat.

    c. improve digestion.

    d. clean their eyes.

13. Some people are very good listeners and kids think that these people

    a. know that modelling doesn't change people's behavior.

    b. indicate they are paying attention to us by what they say.

    c. are able to stop worrying about things.

    d. don't allow peer pressure to bother them.

14. Bev wanted her cat to sit on her lap, so she gave the cat a reward whenever it sat on her lap. Bev was training her pet by using

    a. control.

    b. shaping.

    c. punishment.

    d. reinforcement.

15. Don has learned a psychological strategy. First, he makes his legs really tense, then makes them loose. Next, he tightens his arm muscles, then lets them be really floppy. The psychological strategy is called

    a. relaxation therapy.

    b. biofeedback.

    c. reinforcement.

    d. self motivation.

16. Before every softball game, Melody used to get very nervous that she might not play as well as her Dad wanted. Which of the following would probably help her calm down?

    a. Trying to figure out for herself the main thing she did wrong last game.

    b. Asking her brother to tell her the main thing she did wrong last game.

    c. Oiling her glove, taping up her bat, and ironing her uniform.

    d. Going to the ball field long before the game starts.

17. Mike is six years old. He can't keep two things in mind at once. Which of the following also will probably be true of Mike?

    a. He won't be able to be reinforced.

    b. He can't understand another person's problems.

    c. He is easily convinced that he sees things differently than adults.

    d. He can learn really quickly by making mental pictures of how things relate.

18. Linda has learned to make the temperature in her hand rise and fall by watching a laboratory machine that showed her the temperature. Biofeedback like this is useful for

    a. non-verbal communication.

    b. controlling reinforcement.

    c. motivation.

    d. reducing tension.

19. Nancy was usually teased for bringing peanut butter sandwiches to lunch every day. One day, Gloria and Nancy traded a half sandwich at lunch. Nancy said, "Hey - I'm really glad you like peanut butter. Have some cake, too." After a couple of days of trading, the other kids would probably

a. not tease Nancy.
b. bring peanut butter for lunch.
c. ignore what Nancy and Gloria ate.
d. tease Gloria instead of Nancy.

20. All the kids in the neighborhood think that John's father is very friendly because he smiles and looks directly at you when you talk to him. John's father is good at

a. non-verbal listening skills.
b. motivating himself.
c. verbal listening skills.
d. seeing things from other people's point of view.

21. Dawn wants to feel at ease instead of being embarassed when she has to talk in front of class. One way she can help herself is to

a. say good things about herself in her mind.
b. keep busy doing other things.
c. have other people motivate her.
d. not worry about peer pressure.

22. If Jack wanted to use shaping to teach his dog something, he would

a. do something that his dog does not like.
b. prevent the dog from doing the wrong things.
c. reward behaviors that become more like what he wants the dog to learn.
d. make sure that the dog's mother was smart.

23. Larry thinks that his dog's puppies will be smart because his dog is smart, the puppies' diet is good, and Larry

a. gives the puppies baths.

b. is a good teacher.

c. loves the puppies.

d. reads books about dogs.

24. George's little brother started to throw rocks at birds after he saw George do it. George's little brother has learned by

a. understanding the way things look.

b. being reinforced.

c. non-verbal communication skills.

d. observing other people.

APPENDIX E

Scoring Keys for Multiple-choice and Essay Tests, Studies II and III

Sleep Multiple-Choice Answer Log

Item	Correct Answer
1	C
2	B
3	A
4	D
5	A
6	B
7	C
8	C

Psychology Multiple Choice Answer Key

Item	Correct Answer	Item	Correct Answer
1	B	13	B
2	D	14	D
3	B	15	A
4	C	16	C
5	C	17	B
6	A	18	D
7	D	19	A
8	A	20	A
9	B	21	A
10	D	22	C
11	C	23	B
12	A	24	D

ESSAY SCORING MANUAL: STUDIES II AND III

General Notes on Scoring

Each essay was read from beginning to end and then systematically searched for each individual score. Errors in grammar and spelling did not result in the loss of points if the meaning was clear. The examples given are illustrative but not exhaustive of responses students wrote in the studies.

Scores One and Two: Attribute Retrieval

One point was given for each attribute stated in the answer. Paraphrases were accepted if the meaning was unaltered. An attribute stated as a very specific example was not given credit here, but was given credit in score five -- examples of incidental information.

Score Three: Similarity Specified

2 To receive full credit the answer has to make specific reference to sameness or similarity, i.e., "they both", or "are the same because", or "and so does" and state the correct, shared attribute.

1 If the shared characteristic was correctly identified, but the similarity was not specifically referred to, one point was awarded.

If sameness was referred to but the correct attribute was omitted or an incorrect attribute was substituted, one point was given.

0 If no attempt was made to note a similarity or state the shared attribute and link it to both concepts, no points were awarded.

Score Four: Difference Specified

3 To receive full credit the answer had to make specific reference to difference, name one or both concepts, and associate the correct attribute with each concept.

2 If one or both concepts were named and correctly linked with the attributes, but no specific reference was made to difference, two points were awarded.

1 If neither concept was named but the differing attributes were stated, one point was awarded.

If difference was specifically referred to but one or more incorrect attributes were given, or no attributes were given, one point was awarded.

0 If no attempt was made to refer to difference or state the dissimilar attributes, no points were given.

Score Five: Examples of Incidental Information

One point was awarded for each example or item of incidental information correctly stated.

Score Six: Interchange Across Function

Each time a similarity was referred to as difference, or an unshared attribute was stated as a similarity, one point was given. (Note: In the calculation of the total score, these points were subtracted.)

Score Seven: Interchange Across Concepts

If an attribute unique to one concept was stated to be an attribute shared with the other concept, one point was given. (Note: In the calculation of the total score, these points were subtracted.

SLEEP ESSAY ONE: Describe the similarities and differences between hypersomnia and narcolepsy.

Scores One and Two - Attribute Retrieval

Concept	Attribute	Examples
A. Narcolepsy	believed to be inherited within families	1 - is inherited in the family
		- is inherited from family
		- passed down in the family
		- usually passed down from your mother or father
		- is inherited
		- comes from the family line
		- runs in the family
		- when you take after a relative
		0 - no reference to the above attribute
		- your whole family has it
		- very specific reference receives 'example' credit (see criterion 5), i.e., John's mother had it
B. Hypersomnia	often caused by a problem with other systems of the body	1 - caused by a problem in your body
		- caused by something wrong somewhere in your body
		0 - specific system or gland mentioned receives 'example' credit (see criterion 5)
		- it affects the body
		- related with the structure of your body
		- no reference to the above attribute

shared: (attack of) uncontrolled sleeping	1 - can't control your sleeping
	- fall asleep almost any time
	0 - make you sleep
	- too much sleep
	- sickness to do with sleep
	- asleep very fast
	- no reference to the above attribute
	- fall asleep right away
	- make you very tired
	- they attack your sleep

Score Three - Similarity Specified

2 - Narcolepsy and hypersomnia are the same because they are an attack of uncontrolled sleeping.

- They are both an attack of uncontrolled sleeping.

- Narcolepsy is an attack of uncontrolled sleeping and so is hypersomnia.

- In both, you fall asleep almost any time.

1 - Narcolepsy is an attack of sleeping. Hypersomnia is an attack of sleeping.

- They are both the same (no attribute or incorrect attribute).

- Narcolepsy is inherited and is an attack of uncontrolled sleeping. Hypersomnia is a result of something wrong with another system of the body and is an attack of uncontrolled sleeping.

0 - No attempt to note a similarity.

- Narcolepsy is the same because it is inherited but hypersomnia is caused by a problem with another system in the body.

Score Four - Difference Specified

3 - They are different because narcolepsy is inherited and/but hypersomnia is caused by a problem with another system of the body.

- Narcolepsy is inherited but hypersomnia is caused by a problem somewhere in your body.

- They are different because narcolepsy is inherited but the other is caused by a problem somewhere in your body.

2 - They are different because one is inherited and one is caused by a problem in another part of your body.

- One is inherited and one is a problem in another part of your body.

- Narcolepsy is inherited and hypersomnia is caused by a problem in another system.

- Narcolepsy is inherited and is an attack of uncontrolled sleeping. Hypersomnia is a result of something wrong with another system of the body and is an attack of uncontrolled sleeping.

1 - Narcolepsy is an attack of uncontrolled sleeping and hypersomnia is caused by a problem with another system of the body.

- They are different because ... (no attributes, only one attribute, or one or more incorrect attributes.)

0 - No attempt to point out the difference.

- Narcolepsy is the same because it is inherited but hypersomnia is caused by a problem with another system in the body.

Score Five - Examples or Incidental Information

1 - For each example or piece of incidental information included, one point was awarded.

- Narcolepsy is an illness.

- When you have narcolepsy, you fall asleep if you get excited.

0 - No reference to any examples or incidental information.

N.B. *If the example was so thoroughly described as to include reference to attributes, similarities, and differences, credit was given for Scores 1, 2, 3, and 4, as appropriate.*

Score Six - Interchange across function

1 - They are similar because they are both inherited.

- They are different because one is an uncontrolled attack of sleep and the other isn't.

0 - No interchange of similarity and/or difference.

Score Seven - Interchange across concepts

1 - Hypersomnia is inherited.

- Narcolepsy is caused by a problem in a system of your body.

0 - No interchange of attributes across concepts.

SLEEP ESSAY TWO: Compare and contrast fake hibernation and true hibernation

Scores One and Two - Attribute Retrieval

Concept	Attribute	Examples
A. True or real hibernation	body processes slow down to very low levels	1 - body level goes down
		- temperature is low
		- lowers your body level
		- body temperature and breathing level almost stops completely
		- body temperature doesn't stay level
		- when an animal leaves its body temperature
		- body slows down to a low level
		- body temperature changes
		- heart beat and breathing slow down
		- slows down the body level
		0 - no reference to the above attribute
		- it is different
		- blood pressure stays the same
B. Fake hibernation	keep body temperature at usual	1 - body temperature stays the same
		- your tempo is high
		- blood temperature stays the same

Concept	Attribute	Examples
		- your temperature is high
		- keeps body level at the same pulse
		- body temperature doesn't go down
		- body level is normal
		- staying at the same body heat
		0 - body pressures are normal
		- blood pressure stays the same
		- no reference to the above attribute
		- body pressure is low
		- body temperature increases
	shared: helps animals survive periods when food is scarce	1 - solves the problem of food during winter
		- keep you asleep at the times when there is no food
		- hibernations because food is scarce
		- go into long sleep because it isn't a good time of year for food
		- both are when food is scarce
		- going through hibernation so you don't eat

Examples

1 - help you survive without eating

0 - sleep during a long period

- supply the animal with food

- both are a type of hibernation

- it's easier to survive

- have to do with hibernation

- a type of hibernation

- both are sleeping

- no reference to the above attribute

Score Three - Similarity Specified

2 - Fake and true hibernation are the same because they both help animals survive periods when food is scarce.

- Hibernation helps animals survive periods when food is scarce.

- They both help animals survive when there is little food.

- Fake hibernation helps the animal get through winter with little food and so does true hibernation.

1 - Fake hibernation helps animals through times when they can't find food. True hibernation helps animals through times when they can't find food.

- They are both the same (no attribute or incorrect attribute).

- True hibernation slows down body functions and makes animals sleep for long periods of time. Fake hibernation keeps your bodily functions normal and also makes animals sleep for long periods of time.

0 - No attempt to note a similarity.

- Fake hibernation is the same because temperature stays the same but in true hibernation your temperature drops.

Score Four - Difference Specified

3 - They are different because in fake hibernation the body temperature remains normal but in true hibernation body processes slow down.

- In fake hibernation body temperature remains high but in true hibernation it is low.

- The differences are that one slows down the systems and body temperature drops and fake is when everything stays normal.

2 - They are different because in one the body temperature goes down and in the other it stays the same.

- One is when the animal's temperature stays the same and the other is when it gets lower.

- True hibernation slows down body functions and makes animals sleep for long periods of time. Fake hibernation keeps your bodily functions normal and also makes animals sleep for long periods of time.

- True hibernation is when body processes slow down and fake hibernation is when body temperature stays normal.

1 - Fake hibernation helps animals when food is low and true hibernation slows down body processes.

- They are different because (no attributes, only one attribute, or incorrect attributes.)

0 - No attempt to point out a difference

- Fake hibernation is the same because temperature stays the same but in true hibernation your temperature drops.

Score Five - Examples or Incidental Information

1 - For each example or piece of incidental information included, one point was awarded.

- Some fake hibernators are the bear, skunk and racoon.

- When a snail or a snake goes under ground in the winter.

- When four to twenty skunks go into a burrow and cuddle up for the rest of the winter.

- Fake hibernators are usually warm blooded but true hibernators are usually cold blooded.

- Wake up during fake hibernation but stay in deep sleep during true hibernation.

- Rest for a long time.

- They live off their bodies.

- What animals do in the winter.

- When an animal sleeps through the winter time.

- Sleep during long periods - a deep sleep.

- Animals live on stored fat.

0 - No examples or incidental information included in answer.

- Food provided from around the body.

- Go to sleep.

- Periods of sleep.

N.B. *If the example was so thoroughly described as to include reference to attributes, similarities, and differences, credit was given for Scores 1, 2, 3, and 4, as appropriate.*

Score Six - Interchange across function

1 - They are similar because body processes slow down.

- Hibernation slows down body functions.

- They are different because one helps animals survive when there is no food and the other is when the animal's temperature stays the same.

- Fake hibernation is the same because temperature stays the same but in true hibernation your temperature drops.

0 - No interchange where a shared attribute is called a difference or a difference attribute is called a similarity.

Score Seven - Interchange across concepts

1 - True hibernation is when the body temperature stays the same.

- Fake hibernation is when body processes slow down a lot.

- True hibernation could sometimes be when the animal saves food in a tree or wherever it hibernates.

0 - No interchange of attributes across concepts.

PSCYHOLOGY ESSAY ONE: Compare and contrast modelling with peer pressure as ways that influence how you behave around other people.

Scores One and Two - Attribute Retrieval

Concept	Attribute	Examples
A. Modelling	by observing others	1 - seeing other people
		- you watch others
		- imitate your friends by just looking
		- you observe other people
		- you see what other people do
		0 - showing off
		- you don't know anybody that well
		- caused by people around you
		- misnaming the concept "influence how you behave with others"
		- you get ideas
		- misnaming concept "contrast modelling"
		- you want something of someone else
		- usually turns out perfect
		- is when your pulse rate changes
		- misnaming the concept "modelling with peer pressure
		- you don't get all hipered up

			Examples
			0 - if someone is bothering you just ignore them
			- no mention of the above attribute
B.	Peer pressure	friends have direct influence on you	1 - your friends urge you
			- other people influence you and tell you what to do
			- under other people's control
			- people make you do something
			- your friends force you
			- people tell you what to do
			- someone might push you into doing it
			- your friends do it and keep wanting you to do it
			0 - when you showw off to make friends
			- it usually happens with somebody you know
			- the way you talk and the way you act
			- when someone makes fun of you so then you want the same thing as them
			- when you tell someone to reward you when you do it
			- if you don't like to do something, you should do it and then give yourself a treat after you are done

Examples

0 - how you behave when people are around you

- can usually hurt someone

- when your pulse rate stays the same

- people pressuring you

- when you have others helping you and you behave by yourself better when you are by yourself

- attribute mentioned but not concept, i.e., "people encourage you"

- it isn't what you want to do

- when you have to do something for group relations

- no mention of above attribute

shared: causes you to change

1 - change what you do

- you try to do the same

- tell you what to do and you do it

- have people do something

- when you do something

- follow someone else's ways

- you end up doing what your friends do

- so you follow

- change the way you do things

Examples

1 - make you follow the group

- changing yourself

- you try to act like someone

0 - no mention of the above attribute

- effect how you act

- caused by people around you

- both relate to your friends

- help you stop your habit

- preventing you from getting picked on

- make you feel embarrassed

- shows that you are friendly toward other people

- you are supposed to act intelligent

Score Three - Similarity Specified

2 - Modelling and peer pressure are the same because they cause you to change.

- They both cause you to change.

- Modelling changes how you behave and so does peer pressure.

- In both you cange the way you act.

1 - In modelling you act different from before. In peer pressure you change the way you act.

- They are both the same (no attribute or incorrect attribute).

0 - No attempt to note a similarity.

- Modelling is the same because you watch others but peer pressure is when friends influence you.

Score Four - Difference Specified

3 - They are different because with modelling seeing other people changes you and with peer pressure your friends urge you to change.

- With modelling you imitate your friends by just looking but with peer pressure your friends force you.

- They are different because with peer pressure, your friends tell you to change and with the other seeing others changes you.

2 - They are different because one is when you watch how others do things and the other is when friends make you do something.

- One is when people force you and the other is when you watch people.

- Modelling is when you see what others do and peer pressure is when your friends urge you.

1 - Modelling is when you change and peer pressure is when people tell you what to do.

- They are different because ... (no attributes, only one attribute, or one or more incorrect attributes).

0 - No attempt to point out the difference.

Score Five - Examples or Incidental Information

1 - when you see someone hold his fork a certain way

- when you see someone else dress different

- when you see what other kids play

- change your attitude

- change your dressing style

- some of them start to smoke and they start pressuring you into trying a little puff

0 - No examples or incidental information included in answer.

N.B. If the example was so thoroughly described as to include reference to attributes, similarities, and differences, credit was given for Scores 1, 2, 3, and 4, as appropriate.

Score Six - Interchange Across Function

1 - They are similar because you are doing something people want you to do.

- In modelling you kind of copy someone but in peer pressure someone might push you into doing.

0 - No interchange of similarity and/or difference.

Score Seven - Interchange Across Concepts

1 - Modelling is when you have something different than someone else does so they bug you and then you want the same thing as them.

- Peer pressure is when you see how someone else does it.

0 - No interchange of attributes across concepts.

PSYCHOLOGY ESSAY TWO: In helping you to feel better about yourself, how are stopping your thoughts and keeping busy the same and different?

Scores One and Two - Attribute Retrieval

Concept	Attribute	Example
A. Stopping your thoughts	use a thought to stop a thought	1 - mind says stop
		- think about something else
		- thinking of something else while you start thinking of your trouble
		- use your mind
		- thinking of something better
		- think of something positive
		- blocking a thought by mind control
		0 - when you get rid of everything in your mind
		- you don't think about your thoughts so you stop them
		- has to do with your brain
B. Keeping yourself busy	use activity to stop worry	1 - when you do something to get rid of the awful thoughts
		- occupying yourself so you don't think about it
		- do an action to forget
		- concentrate on whatever you're doing
		- doing something that interests you
		0 - try to ignore something

Examples

0 - makes you think about something else

- a movement which occurs outside the mind

shared - something you can do to stop worry

1 - both keep your mind off the subject which is bothering you

- keep you from thinking things you don't want to think

- take your mind off something stressing

- make thoughts which you don't want to remember go away

0 - so you will forget what is wrong

- to keep your mind off other things

- to help you relax

- doing it to forget

- have to do with worrying

- help you with problems

Score Three - Similarity Specified

2 - Stopping your thoughts and keeping yourself busy are both something you can do to stop worry.

- Both keep your mind off the subject you don't want to think about.

- Stopping your thoughts helps you to stop worrying and so does the other one.

1 - Stopping your thoughts and keeping yourself busy are the same because they help you with your problems.

- You can stop worrying by keeping yourself busy. Stopping your thoughts helps you to not worry.

0 - No reference to similarity.

Score Four - Difference Specified

3 - They are different because with stopping your thoughts you literally stop them and say something like, "This is silly, I shouldn't be worrying. With keeping yourself busy you do something to take your mind off your stress.

2 - One is when your mind says stop and the other is when you do something to stop from worrying.

1 - Keeping yourself busy is when you try to ignore something but when you stop your thoughts, you think about something else in your mind.

- If you stop your thoughts, you stop worrying but when you keep yourself busy you take up a hobby or something so the activity stops you from thinking.

0 - No reference to difference.

Score Five - Examples or Incidental Information

1 - "Yell stop."

- Say something like, "This is silly. I shouldn't be worrying."

- You do something like taking up a hobby.

- It's like changing the subject.

0 - No incidental information or examples.

N.B.. *If the example was so thoroughly described as to include reference to attributes, similarities, and differences, credit was given for Scores 1, 2, 3, and 4, as appropriate.*

Score Six - Interchange across function

1 - They are the same because you think of what you're doing and nothing else.

- Stop your thoughts and keeping yourself busy are similar because in both you have to think thoughts to stop thoughts.

Score Seven - Interchange across concepts

1 - In keeping yourself busy you think about some other thought so you won't think about the bad thought.

0 - No interchange.

PSYCHOLOGY ESSAY THREE: Describe the similarities and differences between reinforcement and shaping in training a pet.

Criteria One and Two - Attribute Retrieval

Concept	Attribute	Examples
A. Reinforcement	giving a reward after your pet does something	1 - rewarding at the end
		- give the pet something every time he does it
		- teach it all in one step with a reward
		- reward your pet for doing what you had in mind
		0 - give a reward
		- no reference to this attribute
B. Shaping	rewarding behaviors which are closer and closer to the behavior you want to teach	1 - reward little by little
		- give your pet the reward in steps
		- reward the pet every time he does something referring to the task he is to accomplish
		- teaching the pet in steps
		- reward for different stages of what you had in mind
		- getting closer and closer to the desired behavior (reward mentioned as shared attribute)
		0 - slowly for each time
		- shaping is bit by bit

Attribute	Example
	0 - gradually making the pet do something
	- train it bit by bit
	- don't do it all at once
	- try to get it closer to make it correct
	- taking your pet step by step to teach him tricks (no mention of reward)
shared: will result in the behavior happening more often	1 - make your pet do the action more
	- both change the pets behavior
	0 - learn a trick
	- help pet learn
	- reward your pet
	- both are for training your pet
	- stop your pet from doing bad things
	- make animals behave
	- teach him to do good things
	- make your pet respond to what he is told to do

Score Three - Similarity Specified

2 - They both make your pet do the action more.

- Reinforcement and shaping are the same because they make your pet do what you want more often.

- Shaping is when you train your pet to do what you want more often and so is reinforcement.

1 - Reinforcement makes your pet do the right thing more often. Shaping makes him do it more often too.

- Reinforcement and shaping are the same because - I don't know.

- They are both the same because they have to do with pets.

- In shaping you reward your pet when he is doing what you want more often, but you train him in little steps. In reinforcement you train him to do what you want more often by giving him a treat when he knows the whole trick.

0 - You can both reward after doing it.

Score Four - Difference Specified

3 - In reinforcement you give the treat to your pet once he has done the whole trick but shaping you give your pet a treat for every part he does.

- They are different because reinforcement is when you give your pet a present after he does what you like but shaping is a reward for different stages of what you had in mind.

- In shaping you give your pet the reward in steps, but in the other you reward him at the end of the whole trick.

2 - They are different because one is when you reward the pet every time he does something referring to the task but the other is when you teach it all in one step with a reward after.

- One is rewards all through the training for each step and the other is a reward after the trick is learned.

- Reinforcement is when you reward your pet at the end of the trick and shaping is when you award him for each step.

1 - Reinforcement is when you give a reward so the behavior will happen more often and shaping is when you do it in steps.

- Reinforcement and shaping are different because ... (no attributes, only one attribute or one or more incorrect attributes).

0 - No attempt to point out a difference.

- A statement which is so confused as to the attributes and the concepts of shaping and reinforcement that an attempt at specifying a difference is not evident.

Score Five - Examples or Incidental Information

1 - learn a trick

- help pet learn
- reward your pet
- give them treats to encourage them
- teach your manners
- give their dog a dog biscuit
- do something your pet likes when he has done the desired behavior

0 - Reinforcement means when you tell the dog to heel or sit.

- Training is making it not poo on the rug.

N.B. *If the example was as thoroughly described as to include reference to attributes, similarities, and differences, credit was given for Scores 1, 2, 3, and 4, as appropriate.*

Score Six - Interchange across function

1 - The similarities of the two are that you do things little by little.

- They are similar because they both try to train a pet by getting closer to the correct trick.

Score Seven - Interchange across concepts

1 - Reinforcement you give them something for trying and shaping you give it them for doing it exactly right.

- In shaping you award your pet with something after it has finished.
- Reinforcement is teaching your pet one step at a time.
- In reinforcement you reward them each time they do what they were supposed to and in shaping, maybe you will reward them just once.

PSYCHOLOGY ESSAY FOUR: Babbling and crying are two ways that babies communicate with other people. How are these two ways to communicate alike and different?

Scores One and Two - Attribute Retrieval

Concept	Attribute	Examples
A. Babbling	often done for fun	1 - for enjoyment
		- a happy mood
		- they like it
		- baby thinks something is funny
		0 - talking
		- when the baby is excited
B. Crying	can help baby get extra air to breathe	1 - to catch breath
		- it needs more air
		- help the child breathe freely
		- to get more oxygen
		- helps baby breathe properly
		- to clear their throats with more air
		- when you cry, you could be letting air out
		- crying is a way a baby breathes
		0 - an unhappy mood
		- it's not fun
		- in crying, you often lose your breath
		- used to annoy the parents

	Examples
shared: sometimes used to get attention from parents	1 - someone might think it's calling them - to get attention - they want attention - both draw attention - trying to tell you something - both are attention grabbers - both are done when they get attention 0 - both are ways to communicate - might be trying to say your name or something - try to talk to you - wants something

Score Three - Similarity Specified

2 - Babbling and crying are the same because they are sometimes used to get attention from parents.

- They both are used to get attention from parents.

- Babbling is used to get attention and so is crying.

- They both cry to get attention.

1 - Babbling is when a baby laughts to get attention but crying is when a baby cries to get attention.

- They are alike because they are ways to communicate.

0 - No attempt to note similarity.

Score Four - Difference Specified

3 - The difference is that babbling is often done for fun but crying can help the baby get extra air to breathe.

- Babbling is often done for fun but crying can help the baby get extra air to breathe.

- The difference is that one is done for fun and crying can help the baby get extra air to breathe.

2 - They are different because one is often done for fun but the other can help the baby get extra air to breathe.

- One is often used to help the baby get extra air and the other is done for fun.

- Crying is used to get extra air to breathe and babbling is done for fun.

- Crying is used to get attention and to help the baby get extra air to breathe. Babbling is used to get attention and is done for fun.

1 - In babbling, you do it to get attention but in crying the baby often gets extra air to breathe.

- They are different because ... (no attributes, only one attribute, or one or more incorrect attributes.)

- They are different because babbling is saying something like gaga or googoo and crying is getting a breath of air.

- They are different because they both sound and mean opposite things.

0 - No attempt to point out the difference.

- Crying is the same because it is used to get extra air to breathe but babbling is done for fun.

Score Five - Examples or Incidental Information

2 - Crying is done for food and diaper change.

- Crying is when the baby is hurt or had a scary dream.

1 - When a baby is babbling ga-ga or goo-goo.

- Babbling is making sounds.

1 - When they cry they might be trying to tell you something like their diapers are wet or something.

- The baby was excited (and needed more air.)

- Babbling is talking.

- Babbling is done to learn how to talk.

- noises a baby makes.

- just trying to say something.

- Crying is when something is irritating him/her.

- if they need something.

- if there is something wrong.

- to get picked up.

- Crying is usually done when the baby is sad.

- when a baby might want someone to play with.

- Both are ways of expressing feelings.

0 - Both sound and mean opposite things.

N.B. *If the example was so thoroughly described as to include reference to attributes, similarities, and differences, credit was given for Scores 1, 2, 3, and 4, as appropriate.*

Score Six - Interchange across function

1 - When babies cry they want attention but when people talk it is different.

- Babbling is when babies talk for fun and crying is when they want something.

0 - Babbling is when they want attention. Crying is when they want extra air.

Score Seven - Interchange across concepts

1 - They are different because they increase the breathing supply.

APPENDIX F

ICR Aptitude and Achievement Measures for Class A, Study IV

Instructions for Student IS-ICR Aptitude Testing for Research Assistants

1. Replay the videotape on your machine with the cueing sheet so that you know exactly where to stop each segment. During the playback to the teacher, you might want to change meter readings on the cueing sheet (where necessary) so they will reflect your machine and the actual playback sequence for the aptitude test.

2. Make sure that you hit the stop button at all segments. Do not use the pause button.

3. Make sure that you have two playback monitors and all of the necessary cables to make them work. Use the monitors in black-and-white mode, even if they are color. We do not want some of the classes to see color and some black-and-white for the aptitude test.

4. Set the monitors up so that all of the students in the class have clear vision of one of the monitors and are close enough to hear the audio clearly. Move desks if necessary. Use the practice item to ensure that all students can see and hear the tape.

5. Read "Set Induction". Practice this several times before administration so that you can do it fluently.

6. Pass out the forms and have the students complete the identifying information. Read the instructions on the front page aloud while the students read silently. Read slowly. Do the practice item and ask if there are any questions. If there is any confusion, do the practice item a second time. However, do not get involved in a discussion of what happened on the practice tapes.

7. For playback, you will have to position yourself so that you can see a TV screen and the VTR, but make sure that you are not obstructing anyone's line of vision.

8. Make sure that every student has finished answering each question before continuing.

9. Stop the tape at the last item and pick up the tests immediately, before turning off any machines or rewinding the tape.

10. If students ask whether they will "get their answers back," tell them we will try to do this if and when we and their teacher have time. This is a stall -- we will not be able to tell them anything about the aptitude test until after the study is completed.

Set Induction Before Handing Out Aptitude Test Forms

When your teacher is teaching a lesson, he/she wants you to be thinking in certain ways. For example, sometimes he/she might want you to remember something, sometimes he/she might want you to practice something in your mind, or sometimes he/she might want you to think of a new way to solve a problem. I am interested in finding out how students understand how their teachers want them to think.

I have been videotaping this class for the last two weeks, and will be showing you one of those videotapes about hearing. I will stop the videotape sometimes and ask you how your teacher might have wanted you to be thinking at that time. Some of the questions might seem a bit hard, but I want you to try your best to answer them. It is very important to me that you answer each question and do your very best on each one.

Mr. Forrester Name ______________

Class A Grade ______________

This is like a regular multiple-choice test. We will show you last Wednesday's lesson about hearing on the TV. We will stop the videotape sometimes. When we stop the videotape, read the choices for the question number I will say. The choices describe different ways that Mr. Forrester might have wanted you to be thinking right at the place where we stopped the tape. Choose the answer that YOU think is right. Make sure you answer every question. Check the line next to your choice. Please look at me as soon as you have answered the question so I will know when we can start the tape again.

Now, watch the television and I will show a very short bit of teaching. When the tape is over, look at the example below and check the line next to your choice.

1. How did this teacher want you to think NOW?

_____ Figure out the rule.

_____ Memorize the sentence.

_____ Make up an example like this one.

Sometimes I will play a couple of minutes of tape before stopping it again; sometimes I will play only 5 or 10 seconds. Pay very close attention to the videotape at all times that it is on.

Now, I will play the tape. When I stop it, check the line next to the way you think this teacher wanted you to think right at the place I stopped the tape.

Mr. Forresters' Aptitude Test

1. How does Mr. Forrester want you to think now?

_____ A. Say this idea once or twice in your mind.
_____ B. Try to remember something in particular.
_____ C. Check to see if you understand what you have learned.
_____ D. Listen carefully to what the next students say.

2. How does Mr. Forrester want you to think now?

_____ A. Say this idea once or twice in your mind.
_____ B. Figure out what is the same and different about the two ideas.
_____ C. Think what is the same about the terms and a diagram.
_____ D. Pay close attention to the very next thing.

3. How does Mr. Forrester want you to think now?

_____ A. Figure out what is the same and different about the two ideas.
_____ B. Remember the key parts of an idea and use them to get an answer.
_____ C. Say this idea once or twice in your mind.
_____ D. Check to see if you understand what you have learned.

4. How does Mr. Forrester want you to think now?

_____ A. Listen carefully to what the next students say.
_____ B. Check to see if you understand what you have learned.
_____ C. Pay close attention to the very next thing.
_____ D. Try to remember something in particular.

5. How does Mr. Forrester want you to think now?

_____ A. Say this idea once or twice in your mind.
_____ B. Listen carefully to what the next students say.
_____ C. Think what is the same about the term and a sound.
_____ D. Pay close attention to the very next thing.

6. How does Mr. Forrester want you to think now?

_____ A. Say this idea once or twice in your mind.
_____ B. Figure out what is the same and different about the two ideas.
_____ C. Check to see if you understand what you have learned.
_____ D. Try to remember something in particular.

7. How does Mr. Forrester want you to think now?

_____ A. Remember the key parts of an idea and use them to get an answer.
_____ B. Try to remember something in particular.
_____ C. Check to see if you understand what you have learned.
_____ D. Listen carefully to what the next students say.

8. How does Mr. Forrester want you to think now?

_____ A. Figure out what is the same and different about the two ideas.
_____ B. Think what is the same about the term and a diagram.
_____ C. Try to remember something in particular.
_____ D. Say this idea once or twice in your mind.

9. How does Mr. Forrester want you to think now?

_____ A. Remember the key parts of an idea and use them to get an answer.
_____ B. Think what is the same about the term and a diagram.
_____ C. Try to remember something in particular.
_____ D. Check to see if you understand what you have learned.

10. How does Mr. Forrester want you to think now?

_____ A. Say this idea once or twice in your mind.
_____ B. Pay close attention to the very next thing.
_____ C. Listen carefully to what the next students say.
_____ D. Think what is the same about the term and a diagram.

11. How does Mr. Forrester want you to think now?

_____ A. Figure out what is the same and different about the two ideas.
_____ B. Check to see if you understand what you have learned.
_____ C. Listen carefully to what the next students say.
_____ D. Think what is the same about the term and a diagram.

12. How does Mr. Forrester want you to think now?

_____ A. Pay close attention to the very next thing.
_____ B. Remember the key parts of an idea and use them to get an answer.
_____ C. Try to remember something in particular.
_____ D. Think what is the same about the term and a diagram.

13. How does Mr. Forrester want you to think now?

_____ A. Say this idea once or twice in your mind.
_____ B. Pay close attention to the very next thing.
_____ C. Figure out what is the same and different about the two ideas.
_____ D. Check to see if you understand what you have learned.

14. How does Mr. Forrester want you to think now?

_____ A. Remember the key parts of an idea and use them to get an answer.
_____ B. Try to remember something in particular.
_____ C. Listen carefully to what the next students say.
_____ D. Figure out what is the same and different about the two ideas.

15. How does Mr. Forrester want you to think now?

_____ A. Figure out what is the same and different about the two ideas.
_____ B. Remember the key parts of an idea and use them to get an answer.
_____ C. Pay close attention to the very next thing.
_____ D. Say this idea once or twice in your mind.

16. How does Mr. Forrester want you to think now?

_____ A. Pay close attention to the very next thing.
_____ B. Check to see if you understand what you have learned.
_____ C. Think what is the same about the term and a diagram.
_____ D. Try to remember something in particular.

17. How does Mr. Forrester want you to think now?

_____ A. Say this idea once or twice in your mind.
_____ B. Think what is the same about the term and a diagram.
_____ C. Figure what is the same and different about the two ideas.
_____ D. Check to see if you understand what you have learned.

18. How does Mr. Forrester want you to think now?

_____ A. Remember the key parts of an idea and use them to get an answer.
_____ B. Figure out what is the same and different about the two ideas.
_____ C. Pay close attention to the very next thing.
_____ D. Try to remember something in particular.

19. How does Mr. Forrester want you to think now?

_____ A. Pay close attention to the very next thing.
_____ B. Remember the key parts of an idea and use them to get an answer.
_____ C. Say this idea once or twice in your mind.
_____ D. Think what is the same about the term and a diagram.

20. How does Mr. Forrester want you to think now?

_____ A. Listen carefully to what the next students say.
_____ B. Try to remember something in particular.
_____ C. Think what is the same about the term and a diagram.
_____ D. Figure out what is the same and different about the two ideas.

Mr. Forrester - Class A

Aptitude Test - Answer Key

Item	Correct Answer	Item	Correct Answer
1	A	11	A
2	C	12	D
3	D	13	B
4	B	14	B
5	A	15	A
6	D	16	C
7	D	17	C
8	C	18	A
9	C	19	B
10	B	20	D

Achievement Test for Hearing: Notes for Teachers

The test is in two parts. The first part (labeled Hearing Part I in the upper left) requires longer, more involved answers, either essays or complex recall items. The second part (labeled Hearing Part II in the upper left) includes multiple choice and/or matching items. The tests must be administered in order so that the multiple choice and matching items do not provide information to the students that they can use to answer the complex questions.

Please hand out Part I and give the students up to twenty (20) minutes to complete it. We are sure this is ample time. When each student is finished with Part I, have him/her hand it in and give him/her Part II. The total testing time should be a maximum of thirty-five (35) minutes, so students who use the full twenty (20) minutes for Part I will have fifteen (15) minutes for Part II. Obviously, students who finish Part I early will have more time for Part II. In any case, thirty-five (35) minutes will be ample.

Please do not answer any questions students may ask about the content of the test. All you should say is, "Just answer as best as you can." Spelling and grammar do not count on Part I (at least for our needs). Make sure that all of the identifying information for each student is completed on the first page of both parts of the test.

Give both parts of the completed tests to your research assistant and make arrangements with him/her for their return to you.

Hearing Part I

Mr. Forrester

Class A

Name ________________________

Grade ________________________

Division ____________________

Here are some short essay questions about the material in the unit on hearing. Try to answer each one as well as you can. You will have 20 minutes to answer Part I. If you finish early, hand in Part I and you will be given Part II.

1. Use three technical terms to describe differences in the sounds made by a bass drum and a kitten mewing. What does each term mean?

2. As sound travels through the ear, what parts of the ear are involved and what does each part do?

Mr. Forrester - Class A

HEARING Essay One: Model Answer

Use three (3) technical terms to describe differences in the sounds made by a bass drum and a kitten mewing. What does each term mean?

Concept	Ideal Answer	Points
Statement of:		
1. volume	volume	1
2. pitch	pitch	1
3. timbre	timbre	1
Definition of:		
4. volume	loudness of sound	1
5. pitch	highness or lowness of sound	1
6. timbre	quality of sound	1
Distinction of:		
7. volume in kittens and bass drum	drum is louder than kitten	1
8. pitch in kittens and bass drum	drum is lower than kitten	1
9. timbre in kittens and bass drum	the quality of sound of a kitten mewing is squeaky whereas a bass drum makes a booming sound	1

Concept	Examples from Essays	Points Awarded
Statement of:		
1. volume	No further responses given.	-
2. pitch	No further responses given.	-
3. timbre	No further responses given.	-
Definition of:		
4. volume	soft or loud	1
	loud, quiet	1
5. pitch	high, low	1

6. timbre	quality or personality	1
	same note but different instrument	0

Distinction of:

7. volume in kittens and bass drums	the kitten is softer; quieter	1
8. pitch in kittens and bass drums	the kittens' pitch is higher	1
9. timbre in kittens and bass drums	the kittens make squeaky sounds; the drum goes boom, boom	1

Mr. Forrester - Class A

HEARING Essay Two: Model Answer

As sound travels through the ear, what parts of the ear are involved and what does each part do?

Concept	Example	Points
Statement of:		
1. eardrum	--	1
2. hammer	--	1
3. anvil	--	1
4. stirrup	--	1
5. cochlea	--	1
6. auditory nerve	--	1
7. brain	--	1

Concept	Examples from Essays	Points Awarded
Statement of Function:		
1. eardrum	picks up sound	1
	collects sound	1
	vibrates and jiggles, passing sound to bones	1
	changes sound into waves	0
2. bones	passes sound to cochlea	1
	vibrate	0
	wiggle	0
3. cochlea	passes sound onto nerve while changing it to electricity	1
	makes vibrations get bigger	0
	used for balance	0

4. auditory nerve	carries sound to the brain	1
	carries message to the brain	1
	goes to brain	0
	attached to cochlea	0
5. brain	understands the message	1
	understands the sound	1
	picks up the sound	0

Hearing Part II

Mr. Forrester

Class A

Name ____________________

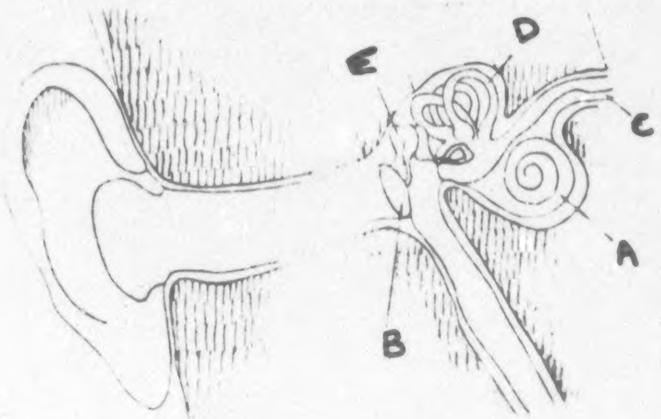
Grade ____________________

Division ________________

Here are some multiple-choice questions about the hearing unit. Try to answer each question as well as you can by filling in the blank with the correct response. If you don't know the answer to a question, make your best guess. Be sure to have an answer for every question.

You'll have 15 minutes to answer Part II. If you finish early, hand in your paper.

1. This diagram labels parts of the ear.



What is

a) ________________________________

b) ________________________________

c) ________________________________

d) ________________________________

e) ________________________________

____ 2. What do decibels measure?

a) clarity
b) loudness
c) vibrations
d) range

____ 3. An echo is a sound that is

a) reflected;
b) shortened;
c) lengthened;
d) magnified.

____ 4. Which term refers to loudness?

a) pitch;
b) wavelength;
c) direction;
d) volume.

5. Fill in the blank with the letter of the term that best matches the function described.

____ It understands sound messages.

____ It changes vibrations into electrical energy.

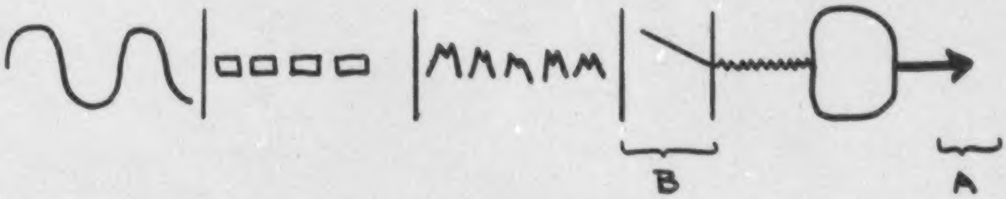
____ It carries sound messages.

A. brain
B. eardrum
C. nerve
D. cochlea
E. muscle

6. This diagram shows what happens to a sound message. What is

a) ______________________

b) ______________________



____ 7. Timbre refers to the

a) distance a sound travels;
b) movements of the eardrum;
c) quality of sound;
d) vibrations of the bones in the ear.

Mr. Forrester - Class A

HEARING Multiple-Choice Test
Answer Key

Item	Correct Answer	Item	Correct Answer
1	cochlea	8	D
2	eardrum	9	A
3	auditory nerve	10	D
4	canals that control self movement	11	C
5	hammer, anvil, stirrup	12	muscle action
6	B	13	synapse
7	A	14	C

Mr. Forrester - Class A

HEARING Multiple-Choice Test
Items from Each Lesson

	LESSONS 1	2	3	4
ITEMS:	4	2	1a	6a
	7	3	1b	6b
		4	1c	
		7	1d	
			1e	
			5a	
			5b	
			5c	

HEARING Essay Test
Items from Each Lesson

	LESSONS 1	2	3	4
ITEMS:		1	2	

Vision Part I

Mr. Forrester

Class A

Name ____________________

Grade ____________________

Division ____________________

Here are some short essay questions about the material in the unit on vision. Try to answer each one as well as you can. You will have 20 minutes to answer Part I. If you finish early, hand in Part I and you will be given Part II.

1. Name all of the parts of the human eye and describe what each one does.

2. Name three (3) ways that an artist can show depth in a painting. Tell how each way shows depth.

3. How are reflection and refraction alike? How are they different? Give an example of each.

Mr. Forrester - Class A

VISION Essay One: Model Answer

Name all the parts of the human eye and describe what each one does.

Concepts	Ideal Answer	Points for Statement	Points for Function
Statement of:	Function:		
1. eyelid	protects eyeball	1	1
2. cornea	protects the eyeball	1	1
3. pupil	allows light through	1	1
4. iris	adjusts amount of light	1	1
5. lens	focuses	1	1
6. clear fluid	allows light through to retina	1	1
7. retina	imprints image	1	1
8. optic nerve	transmits image to the brain	1	1

Concepts	Examples from Essays	Points Awarded
1. eyelid	protects cornea	1
	covers cornea	1
2. cornea	protects the pupil	1
	like a window	0
	lets light come in	0
3. pupil	is a hole in your eye to let the picture through	1
	receives light rays	1
	lets you see	0
4. iris	makes pupil bigger or smaller	1
	is a muscle around the pupil	0
	helps focus	0

5.	lens	focuses the picture	1
		lets light in	0
		it's there so we can see properly	0
6.	clear fluid	keeps eye in ball shape	1
		it magnifies the picture	0
		protects the inside of the eye	0
7.	retina	is where the picture is turned upside down	1
8.	optic nerve	is a nerve going to the brain	1
		changes light to electricity and carries it to the brain	1
		takes idea to the brain	0

Vision Part II

Mr. Forrester

Name ____________________

Grade ____________________

Division ____________________

Here are some multiple-choice questions about the vision unit. Try to answer each question as well as you can by filling in the blank with the correct response. If you don't know the answer to a question, make your best guess. Be sure to have an answer for every question.

You'll have 15 minutes to answer Part II. If you finish early, hand in your paper.

____ 1. Which one is not a cue for distance for a person with only one eye?

a) height in plane
b) overlap
c) parallax
d) shadow

____ 2. When you look out the windows of this classroom you can see many objects clearly. This is because the glass of the window is

a) opaque.
b) transluscent.
c) transparent.
d) reflective.

____ 3. Which of the following is necessary for radar to work?

a) waves are reflected
b) frequency varies
c) pitch is constant
d) light is changed to sound

____ 4. A headlight on a car is most like a

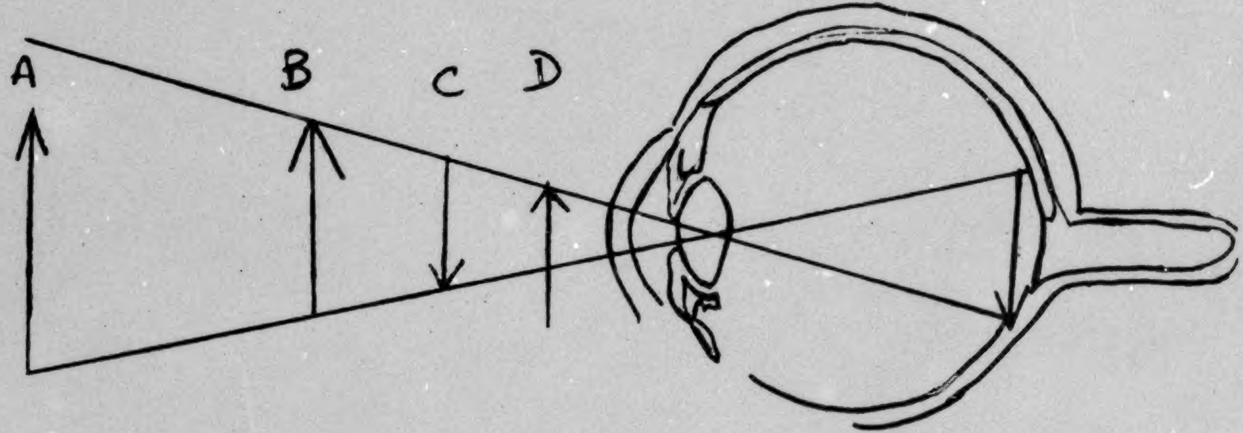
a) single convex mirror.
b) single concave mirror.
c) double concave mirror.
d) double convex mirror.

____ 5. The tree appears closer than the house because

a) of perspective.
b) of parallax.
c) it is smaller.
d) of the shadow.

____ 6. An owl can see better at night than a human because

a) its retina is flatter .
b) its eyes are set farther apart .
c) its pupils can dilate more .
d) its optic nerve transmits better .



7. Which arrow formed the image in the eye? Check the appropriate letter.

A _____ B _____ C _____ D _____

8. Fill in the blank with the letter of the term that best matches the part of the eye.

Video

____ opening

____ cable

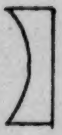
____ diaphragm

Eye

a) retina
b) eyelid
c) iris
d) clear fluid
e) pupil
f) optic nerve

____ 9. The lens pictured to the right is:

a) single concave
b) double convex
c) double concave
d) single convex



____ 1C. When rays of light pass from air to water, the rays are

a) reflected.
b) lengthened.
c) refracted.
d) shortened.

____ 11. Honey bees see flowers differently than do people. What kind of light can they see that humans cannot?

a) infrared
b) ultraviolet
c) very bright
d) indigo light

____ 12. You are on a golf course. A blur passes through your field of vision. You think it is a golf ball, though it could really be something else like a bird. This is an example of

a) set.
b) visual memory.
c) overlap.
d) figure & ground.

____ 13. Radiotelescopes are mostly used to

a) filter ultraviolet rays for telescopes.
b) send messages to satellites.
c) see the colours of distant planets.
d) collect sound waves from space.

Mr. Forrester - Class A

VISION Multiple-Choice Test
Answer Key

Item	Correct Answer	Item	Correct Answer
1	C	9	F
2	C	10	C
3	A	11	A
4	B	12	C
5	D	13	B
6	C	14	A
7	B	15	D
8	E		

Mr. Forrester - Class A

VISION Multiple-Choice Test
Items from Each Lesson

	LESSONS					
	1	2	3	4	5	6
ITEMS:	12	8a	1	2	3	6
		8b	5	7	13	11
		8c		10	4	
					9	

VISION Essay Test
Items from Each Lesson

	LESSONS					
	1	2	3	4	5	6
ITEMS:		1	2	3		

Ecology Part I

Mr. Forrester

Name ____________________

Grade ____________________

Division ____________________

Here are some short essay questions about the material in the unit on ecology. Try to answer each one as well as you can. You will have 20 minutes to answer Part I. If you finish early, hand in Part I and you will be given Part II.

1. Explain the term 'adaptation.' Describe the two kinds of adaptation and give an example of each.

2. The amount of energy moving through a food chain changes. Name the stages of a typical food chain. Explain what happens to energy as it moves through the food chain. (Be sure to give scientific terms in your answer.)

3. Tell what "interdependence" means. Give two examples of interdependence and tell how they work.

Mr. Forrester - Class A

ECOLOGY Essay One: Model Answer

Explain the term 'adaptation'. Describe the two kinds of adaptation and give an example of each.

Concepts	Example	Points
1. definition of adaptation	1) change	1
2. increase in survival		1
kinds of change: 3. behavioral		
4. physical		
5. explanation of behavioral	change in what an organism does	1
6. explanation of physical	change in an organism's appearance	1
7. example of behavioral change		1
8. example of physical change		1

Concepts	Examples from Essays	Points Awarded
1. definition of adaptation - change	no matching responses	-
2. increase in survival	no matching responses	-
3. kinds of change: behavioral	no matching responses	-
4. physical	no matching responses	-
5. explanation of behavioral	no matching responses	-

6.	explanation of physical	no matching responses	-
7.	example of behavioral change	behave	1
8.	example of physical change	no matching responses	-

Mr. Forrester - Class A

ECOLOGY Essay Two: Model Answer

The amount of energy moving through a food chain changes. Name the stages of a typical food chain. Explain what happens to energy as it moves through the food chain.

Concepts	Points
Statement of:	
1. sun	1
2. producer	1
3. primary consumer	1
4. secondary consumer	1
5. decomposer	1
Energy loss due to:	
6. heat loss	1
7. growth	1
8. stored	1
9. muscle action	1

Concepts	Examples from Essays	Points
1. sun	no matching responses	-
2. producer	no matching responses	-
3. primary consumer	consumer	1
4. secondary consumer	no matching responses	-
5. decomposer	no matching responses	-
6. heat loss	no matching responses	-
7. growth	no matching responses	-
8. stored	into fat bank	1
9. muscle action	no matching responses	-

Mr. Forrester - Class A

ECOLOGY Essay Three: Model Answer

Tell what "interdependence" means. Give two examples of interdependence and tell how they work.

Concepts	Points
1. definition of interdependence	1
2. example of A & B (interdependent pair)	1
3. example of C & D (interdependent pair)	1
4. explanation of how A affects B	1
5. explanation of how B affects A	1
6. explanation of how C affects D	1
7. explanation of how D affects C	1

Concepts	Examples from Essays	Points Awarded
1. definition of interdependence	two things helping each other	1
	working together in two different ways	0
	when two objects depend on each other	0
2. example of A&B	cows rely on clover	1
	animals need other animals	0
3. example of C&D	no matching responses	-
4. explanation of how A affects B	no matching responses	-
5. explanation of how B affects A	no matching responses	-
6. explanation of how C affects D	no matching responses	-
7. explanation of how D affects C	no matching responses	-

Ecology Part II
Mr. Forrester
Class A

Name ____________________
Grade ____________________
Division ____________________

Here are some multiple-choice questions about the ecology unit. Try to answer each question as well as you can by filling in the blank with the correct response. If you don't know the answer to a question, make your best guess. Be sure to have an answer for every question.

You'll have 15 minutes to answer Part II. If you finish early, hand in your paper.

____ 1. Which of the following is an example of interdependence?

a) a plant using sunlight
b) a bird migrating
c) cows fertilizing plants they eat
d) squirrels building nests in trees

____ 2. Temperature is determined by the altitude of an ecosystem and by the ecosystem's

a) amount of carbon dioxide.
b) latitude.
c) longitude.
d) amount of moisture.

____ 3. If a living thing makes its own food, it is called

a) a producer.
b) a 1st order consumer.
c) a decomposer.
d) prey.

____ 4. The climate of an ecosystem has two basic parts. What are these two parts?

a) soil type; temperature
b) moisture, temperature
c) soil type, moisture
d) altitude, temperature

____ 5. A bird gets energy from eating sunflower seeds. Later, a cat gets energy from eating the bird. These events make up

a) a predator-prey relationship.
b) a food chain.
c) an ecosystem.
d) a biome.

____ 6. A tree just before it is chopped down contains what kind of energy?

- a) heat energy
- b) mechanical energy
- c) potential energy
- d) kinetic energy

____ 7. Which would explain a doubling of the moles in Stanley Park?

- a) an increase in death rate
- b) an increase in the number of foxes in Stanley Park
- c) decomposers becoming more efficient
- d) an increase in the birth rate of moles

____ 8. When an ecologist studies several species of plants that live in the same area, he is studying

- a) an ecosystem.
- b) a community.
- c) populations.
- d) food webs.

____ 9. If carbon dioxide were taken away from the atmosphere, which living thing would experience problems first?

- a) first order consumers
- b) producers
- c) decomposers
- d) second order consumers

____ 10. The specific area in which a population of swallows lives is called its

- a) community.
- b) environment.
- c) ecosystem.
- d) habitat.

____ 11. Name one way that energy is lost in the ecosystem.

____

____ 12. Which is not part of the nitrogen cycle?

- a) upheavals in the earth's crust
- b) rain falling through the atmosphere
- c) the activities of decomposers
- d) the activities of green plants

____ 13. Immigration of a swarm of bees into a park would result in

a) an increase in the bee population.
b) a decrease in predators of bees.
c) an increase in diseases that kill bees.
d) a change in the energy flow.

____ 14. When whales eat very small animals, they are participating in a

a) predator-prey relationship.
b) good-bad relationship.
c) benefit - no difference relationship.
d) mutual benefit relationship.

____ 15. A complex relationship involving many plants and animals that feed on each other is called a

a) feeding relationship.
b) habitat.
c) food chain.
d) food web.

____ 16. There are black squirrels and grey squirrels in a certain area. They live in the same trees and eat the same food. This is an example of what kind of relationship?

a) predator-prey
b) mutual benefit
c) competitive
d) benefit-no difference

____ 17. What is the main role of decomposers in the ecosystem?

a) they create energy
b) they return heat to the environment
c) they recycle matter from dead things for use by other things
d) they decrease the mineral supply in the environment

____ 18. Lichen that grows on rocks is really made up on two living things. The first one makes sap that the second one eats, while the second one collects water for the first one. This is an example of what kind of relationship?

a) mutual benefit
b) predator-prey
c) benefit-no difference
d) competitive

____ 19. When a robin eats blueberries, the robin is called a

a) producer.
b) decomposer.
c) consumer.
d) predator.

____ 20. Through which of the following does the greatest amount of energy flow?

a) producers
b) 2nd order consumers
c) 1st order consumers
d) decomposers

____ 21. A collection of populations of different species that depend on each other and live in the same area is called a

a) community.
b) population.
c) food web.
d) habitat.

____ 22. When animals like racoons changed their diet to include human garbage so they could live in areas where towns had developed, the raccoons had

a) mutated.
b) adapted.
c) evolved.
d) migrated.

____ 23. Which of the following is a good example of an ecological community?

a) whales, frogs, lizards, and seaweed
b) deer, berry bushes, wolves and bacteria
c) moss, cactus, rabbits and salmon
d) pine trees, salamanders, spiders and porpoises

____ 24. Energy that flows in the ecosystem moves in a very important way. This energy moves from

a) consumers to producers and back again.
b) sun to decomposers.
c) plants to producers.
d) producers to consumers.

Mr. Forrester - Class A

ECOLOGY Multiple-Choice Test

Item	Correct Answer	Item	Correct Answer
1	C	13	A
2	B	14	A
3	A	15	D
4	B	16	C
5	B	17	C
6	C	18	A
7	D	19	C
8	B	20	A
9	B	21	A
10	D	22	B
11	growth fat/storage, muscle action	23	B
12	A	24	D

Mr. Forrester - Class A

ECOLOGY Multiple-Choice Test Items from Each Lesson

	LESSONS							
	1	2	3	4	5	6	7	8
ITEMS:	16T	3T	20	17T	15T	13	10T	2T
	14T	19T	24T	9	1	7T	21T	22T
	18	6	11T	12T	5T	8T	23	4

Note: T means that the content in the item was tagged with an instructional stimulus during the lesson.

ECOLOGY Essay Test Items from Each Lesson

	LESSONS							
	1	2	3	4	5	6	7	8
ITEMS:			2				3	1

Mr. Forrester - Class A

Concepts	Number of Times Concept was Taught	Number of Times Concept was Tagged
ECOLOGY: Lesson One		
1. competitive relationships	2	1
2. mutual benefit	2	1
3. benefit-no difference	1	
4. predator-prey relationship	1	
5. ecosystem	3	1
6. relationship	2	1
ECOLOGY: Lesson Two		
1. ecosystem	1	
2. energy conversion in plants	1	
3. energy conversion	1	
4. potential energy	1	
5. kinetic energy	1	1
6. consumers	1	1
7. producers	1	1
8. photosynthesis	2	1
9. chlorophyll	2	1
10. energy	2	1
ECOLOGY: Lesson Three		
1. unidirectional flow of energy	1	1
2. energy loss to heat & growth	2	1
3. energy loss through ecosystem	2	1
ECOLOGY: Lesson Four		
1. producers	1	1
2. consumers	1	1
3. decomposers	1	1
4. carbon cycle	1	1
5. nitrogen cycle	1	1
ECOLOGY: Lesson Five		
1. food chain	2	1
2. food web	2	1
3. interdependence	1	1
ECOLOGY: Lesson Six		
1. reasons for increase in populations	2	1
2. definition of populations	3	1
3. reasons for decrease in populations	1	1

Mr. Forrester - Class A

Concepts	Number of Times Concept was Taught	Number of Times Concept was Tagged
ECOLOGY: Lesson Seven		
1. interdependence	1	1
2. habitat	2	1
3. definition of communities	3	1
4. changes in communities	2	1
ECOLOGY: Lesson Eight		
1. climate - major influence in ecosystem	1	
2. temperature - latitude and altitude	1	1
3. another main factor in the ecosystem is soil type	1	
4. adaptation - definition	2	1
5. adaptation - physical	1	1
6. adaptation - behavioral	2	1
7. ecosystem has living and non-living components	1	1

APPENDIX G

ICR Aptitude and Achievement Measures for Class B, Study IV

Note: Three sheets common to all classes participating in the project are not duplicated here. They can be found in Appendix F and are titled:

(1) Instructions for Student IS-ICR Aptitude Testing for Research Assistants

(2) Set Induction Before Handing Out Aptitude Test Forms

(3) Achievement Tests for Hearing: Notes for Teachers

Mr. Dixon

Class A

Name ____________

Grade ____________

This is like a regular multiple-choice test. We will show you last Wednesday's lesson about hearing on the TV. We will stop the videotape sometimes. When we stop the videotape, read the choices for the question number I will say. The choices describe different ways that Mr. Dixon might have wanted you to be thinking right at the place where we stopped the tape. Choose the answer that YOU think is right. Make sure you answer every question. Check the line next to your choice. Please look at me as soon as you have answered the question so I will know when we can start the tape again.

Now, watch the television and I will show a very short bit of teaching. When the tape is over, look at the example below and check the line next to your choice.

1. How did this teacher want you to think NOW?

    _____ Figure out the rule.

    _____ Memorize the sentence.

    _____ Make up an example like this one.

Sometimes I will play a couple of minutes of tape before stopping it again; sometimes I will play only 5 or 10 seconds. Pay very close attention to the videotape at all times that it is on.

Now, I will play the tape. When I stop it, check the line next to the way you think this teacher wanted you to think right at the place I stopped the tape.

1. How does Mr. Dixon want you to think now?

_____ A. Say this idea once or twice in your mind.
_____ B. Try to remember something in particular.
_____ C. Check to see if you understand what you have learned.
_____ D. Listen carefully to what the next students say.

2. How does Mr. Dixon want you to think now?

_____ A. Say this idea once or twice in your mind.
_____ B. Figure out what is the same and different about the two ideas.
_____ C. Think what is the same about the terms and a diagram.
_____ D. Pay close attention to the very next thing.

3. How does Mr. Dixon want you to think now?

_____ A. Figure out what is the same and different about the two ideas.
_____ B. Remember the key parts of an idea and use them to get an answer
_____ C. Say this idea once or twice in your mind.
_____ D. Check to see if you understand what you have learned.

4. How does Mr. Dixon want you to think now?

_____ A. Listen carefully to what the next students say.
_____ B. Check to see if you understand what you have learned.
_____ C. Pay close attention to the very next thing.
_____ D. Try to remember something in particular.

5. How does Mr. Dixon want you to think now?

_____ A. Say this idea once or twice in your mind.
_____ B. Listen carefully to what the next students say.
_____ C. Think what is the same about the term and a sound.
_____ D. Pay close attention to the very next thing.

6. How does Mr. Dixon want you to think now?

_____ A. Say this idea once or twice in your mind.
_____ B. Figure out what is the same and different about the two ideas.
_____ C. Check to see if you understand what you have learned.
_____ D. Try to remember something in particular.

7. How does Mr. Dixon want you to think now?

_____ A. Remember the key parts of an idea and use them to get an answer
_____ B. Try to remember something in particular.
_____ C. Check to see if you understand what you have learned.
_____ D. Listen carefully to what the next students say.

8. How does Mr. Dixon want you to think now?

_____ A. Figure out what is the same and different about the two ideas.
_____ B. Think what is the same about the term and a diagram.
_____ C. Try to remember something in particular.
_____ D. Say this idea once or twice in your mind.

9. How does Mr. Dixon want you to think now?

_____ A. Remember the key parts of an idea and use them to get an answer
_____ B. Think what is the same about the term and a diagram.
_____ C. Try to remember something in particular.
_____ D. Check to see if you understand what you have learned.

10. How does Mr. Dixon want you to think now?

_____ A. Say this idea once or twice in your mind.
_____ B. Pay close attention to the very next thing.
_____ C. Listen carefully to what the next students say.
_____ D. Think what is the same about the term and a diagram.

11. How does Mr. Dixon want you to think now?

_____ A. Figure out what is the same and different about the two ideas.
_____ B. Check to see if you understand what you have learned.
_____ C. Listen carefully to what the next students say.
_____ D. Think what is the same about the term and a diagram.

12. How does Mr. Dixon want you to think now?

_____ A. Pay close attention to the very next thing.
_____ B. Remember the key parts of an idea and use them to get an answer
_____ C. Try to remember something in particular.
_____ D. Think what is the same about the term and a diagram.

13. How does Mr. Dixon want you to think now?

_____ A. Say this idea once or twice in your mind.
_____ B. Pay close attention to the very next thing.
_____ C. Figure out what is the same and different about the two ideas.
_____ D. Check to see if you understand what you have learned.

14. How does Mr. Dixon want you to think now?

_____ A. Remember the key parts of an idea and use them to get an answer
_____ B. Try to remember something in particular.
_____ C. Listen carefully to what the next students say.
_____ D. Figure out what is the same and different about the two ideas.

15. How does Mr. Dixon want you to think now?

_____ A. Figure out what is the same and different about the two ideas.
_____ B. Remember the key parts of an idea and use them to get an answer
_____ C. Pay close attention to the very next thing.
_____ D. Say this idea once or twice in your mind.

16. How does Mr. Dixon want you to think now?

_____ A. Pay close attention to the very next thing.
_____ B. Check to see if you understand what you have learned.
_____ C. Think what is the same about the term and a diagram.
_____ D. Try to remember something in particular.

17. How does Mr. Dixon want you to think now?

_____ A. Say this idea once or twice in your mind.
_____ B. Think what is the same about the term and a diagram.
_____ C. Figure what is the same and different about the two ideas.
_____ D. Check to see if you understand what you have learned.

18. How does Mr. Dixon want you to think now?

_____ A. Remember the key parts of an idea and use them to get an answer
_____ B. Figure out what is the same and different about the two ideas.
_____ C. Pay close attention to the very next thing.
_____ D. Try to remember something in particular.

19. How does Mr. Dixon want you to think now?

_____ A. Pay close attention to the very next thing.
_____ B. Remember the key parts of an idea and use them to get an answer
_____ C. Say this idea once or twice in your mind.
_____ D. Think what is the same about the term and a diagram.

20. How does Mr. Dixon want you to think now?

_____ A. Listen carefully to what the next students say.
_____ B. Try to remember something in particular.
_____ C. Think what is the same about the term and a diagram.
_____ D. Figure out what is the same and different about the two ideas.

Mr. Dixon - Class B

Aptitude Test Answer Key

Item	Correct Answer	Item	Correct Answer
1	D	11	B
2	A	12	D
3	B	13	B
4	C	14	A
5	D	15	D
6	D	16	A
7	B	17	B
8	C	18	C
9	C	19	A
10	A	20	C

Hearing Part I

Mr. Dixon

Class B

Name ______________________

Grade ______________________

Division ____________________

Here are some short essay questions about the material in the unit on hearing. Try to answer each one as well as you can. You will have 20 (twenty) minutes to answer Part I. If you finish early, hand in Part I and you will be given Part II.

1. Use three (3) technical terms to describe differences in the sounds made by a bass drum and a kitten mewing. What does each term mean?

2. Give two examples of what might happen to a small child who did not have a startle response. How might the child behave differently if he/she had a startle response?

Mr. Dixon - Class B

HEARING Essay One: Model Answer

Use three (3) technical terms to describe differences in the sounds made by a bass drum and a kitten mewing. What does each term mean?

Concept	Ideal Answer	Points
Statement of		
1. pitch	--	1
2. volume	--	1
3. timbre	--	1
Definition of		
4. pitch	highness or lowness of sound	1
5. volume	loudness of sound	1
6. timbre	quality of sound	1
Distinction between		
7. pitch in bass drum and kitten	bass - low pitch; kitten - high pitch	1
8. volume in bass drum and kitten	the drum is most likely louder than the kitten	1
9. timbre in bass drum and kitten	a kitten mewing is a totally different sound than a bass drum	1

Concept	Examples from Essays	Points Awarded
1. pitch	--	-
2. volume	--	-
3. timbre	treble	1
4. pitch	loud and low	0
	high or low talking about music	1
5. volume	high or low	0
	loudness or quietness	1

6.	timbre	one sound is stronger than the other which means pitch	0
7.	pitch in bass drum and kitten	--	-
8.	volume in bass drum and kitten	--	-
9.	timbre in bass drum and kitten	--	-

Mr. Dixon - Class B

HEARING Essay Two: Model Answer

Give two examples of what might happen to a small child who did not have a startle response. How might the child behave differently if he/she had a startle response?

Concept	Ideal Answer	Points
Statement of:		
1. First example of child's action without startle response.	If he heard a loud sound, he would not know how to react.	1
2. Second example of child's action without startle response.	No correct response given.	-
3. Example 1 of child's different behaviors with startle response.	S/he would run out of the way.	1
4. Example 2 of child's behavior with startle response.	No correct response given.	-
5. Definition of startle response.	Startle response is your reaction to a sound.	1

Concept	Examples from Essays	Points Awarded
1. First example of child's action without startle response.	He would not react as fast, would not jump if a book dropped.	1
	The child would most likely be deaf.	0
2. Second example of child's action without startle response.	S/he would probably get hurt.	0
3. Example 1 of child's different behaviors with startle response.	Nothing really would happen if s/he had a startled response.	0
4. Example 2 of child's behavior with startle response.	S/he would go and help whoever was in trouble.	0
5. Definition of startle response.	No other examples given.	-

Hearing Part II

Mr. Dixon

Class B

Name ____________________

Grade ____________________

Division ____________________

Here are some multiple-choice questions about the hearing unit. Try to answer each question as well as you can by filling in the blank with the correct response. If you don't know the answer to a question, make your best guess. Be sure to have an answer for every question.

You'll have 15 minutes to answer Part II. If you finish early, hand in your paper.

_____ 1. Pitch tells us when someone

a) plays a high note instead of a low note.
b) plays his instrument too loudly.
c) plays the wrong instrument.
d) rings a bell too soon.

_____ 2. When we hear a familiar jingle, such as "You deserve a break today at __________," we know what comes next because of

a) auditory memory.
b) auditory reflex.
c) patterning.
d) the control center.

_____ 3. The function of semicircular canals is to

a) collect sound waves.
b) transmit vibrations to bones.
c) control balance.
d) carry sound to the brain.

_____ 4. When a book is dropped on the floor, we hear a sound because

a) the eustachian tubes react to sound waves in the air.
b) the book and the floor are both solid objects.
c) air is forced between the book and floor at great speed.
d) vibrations in the air are picked up by the ears.

_____ 5. What does the cochlea do in the hearing system?

a) It identifies echo sounds.
b) It passes sound to the eardrum.
c) It helps transmit sound to the brain.
d) It makes the eustachian tube vibrate.

____ 6. Timbre refers to the

a) distance a sound travels.
b) movements of the eardrum.
c) vibrations of the small bones.
d) quality of sound.

____ 7. After sound makes the eardrum vibrate, where does it go next?

a) outer ear
b) small bones
c) auditory nerve
d) semi-circular canal

____ 8. What do decibels measure?

a) clarity
b) vibration
c) range
d) loudness

____ 9. What happens to molecules in the air when sound goes from a drum to the ear? They

a) move from the drum to your ear.
b) bump into one another moving back and forth.
c) scatter all over the place.
d) stay still and the sound travels around them.

____ 10. Which term refers to loudness?

a) volume
b) pitch
c) wavelength
d) direction

____ 11. Which of the following sounds would likely cause a startle response?

a) piano player plays the wrong note at a concert
b) a student beside you drops his pencil
c) the fire alarm goes off during silent reading period
d) your mother calls you in for dinner

____ 12. What part of the ear collects sound waves?

a) cochlea
b) outer ear
c) eustachian tube
d) brain

Mr. Dixon - Class B

HEARING Multiple-Choice Test

Answer Key

Item	Correct Answer	Item	Correct Answer
1	A	7	B
2	A	8	D
3	C	9	B
4	D	10	A
5	C	11	C
6	D	12	B

Mr. Dixon - Class B

HEARING Multiple-Choice Test
Items from Each Lesson

LESSONS

	1	2	3	4
ITEMS:	3	2	3	4
	5	1	4	2
	7	6	8	11
	12	10	9	

HEARING Essay Test
Items from Each Lesson

LESSONS

	1	2	3	4
ITEMS:		1		2

Vision Part I

Mr. Dixon

Class B

Name ________________________

Grade ________________________

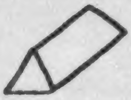
Here are some short essay questions about the material in the unit on vision. Try to answer each one as well as you can. You will have 20 minutes to answer Part I. If you finish early, hand in Part I and you will be given Part II.

1. Name all the parts of the human eye and describe what each one does.

2. Name three (3) ways that an artist can show that one thing is further away from another in a painting. Tell how each way shows this.

3. In each box write the name of a different kind of lens. (You should have a total of four (4) lenses.) Draw a picture of each lens in its box.

Example:



← picture of lens

← name of lens

prism

1. ______________

2. ______________

3. ______________

4. ______________

Mr. Dixon - Class B

VISION Essay One: Model Answer

Name all the parts of the human eye and describe what each one does.

Concept	Ideal Answer	Points
1. statement of lens	--	1
2. function of lens	focuses the image	1
3. statement of retina	--	1
4. function of retina	catches light and makes a picture	1
5. statement of optic nerve	--	1
6. function of optic nerve	sends the picture to your brain	1
7. statement of iris	--	1
8. function of iris	directs how much light goes in your eye	1
9. statement of cornea	--	1
10. function of cornea	contains the eye	1

Concept	Examples from Essays	Points Awarded
2. function of lens	a part in your eye that sends light to the retina	0
	used for focusing	1
4. function of retina	it's like a film in the eye	1
	a muscle around your eyeball	0
6. function of optic nerve	your eye remembers what it sees	0
	connects eye to brain	1
8. function of iris	to help direct light	0
	lets in how much light the eye needs	1
10. function of cornea	protects and contains the eye	1
	tip of the eye	0

NOTE: No other response was acceptable for items 1, 3, 5, 7 and 9.

Mr. Dixon - Class B

VISION Essay Two: Model Answer

Name three (3) ways that an artist can show that one thing is farther away from another in a painting. Tell how each ways shows this.

Concept	Ideal Answer	Points
1. statement of overlap		1
2. overlap shows	one object that overlaps another makes it look in front of it	1
3. statement of size		
4. size shows		1
5. statement of height in plane		1
6. height in plane shows	things that are higher look farther away	1

Concept	Examples from Essays	Points Awarded
1. statement of overlap	overlap - the back one is farther	1
	cover something up and makes it look bigger	0
2. overlap shows	something that's closer overlaps another thing that's farther	1
	behind each other	0
3. statement of size	smaller	0
4. size shows	put the bigger thing in front and smaller in back	1
	the size of a thing can show you a bit	0
5. statement of height in plane	height and plane	1
	level (with a diagram or explanation)	1
6. height in plane shows	things higher are farther behind	1
	thing look bigger and farther	0

Mr. Dixon - Class B

VISION Essay Three: Model Answer

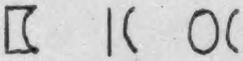
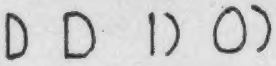
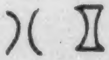
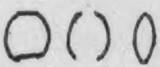
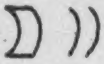
In each box write the name of a different kind of lens. (You should have a total of four (4) lenses.) Draw a picture of each lens in its box.

Example:

← picture of lens

← name of lens

prism

Concept	Ideal Answer	Points
1. statement of concave	1, 3, 5, 7, 9 -- exact words must be used (though spelling is not essential, e.g., concav = concave complex = convex)	1
2. picture of concave		1
3. statement of double concave	2, 4, 6, 8, 10 -- acceptable diagrams are shown below	1
4. picture of double concave	concave: 	1
5. statement of convex	convex: 	1
6. picture of convex		1
7. statement of double convex	double concave: 	1
8. picture of double convex	double convex: 	1
9. statement of convex/concave	concave/convex: 	1
10. picture of convex/concave		1

* maximum score of 8 (any combination of the above to give a maximum of 8 points)

Concept	Examples from Essays	Points Awarded
1. statement of concave	one-sided concave	1
3. statement of double concave	double cave	1

Vision Part II

Mr. Dixon

Class B

Name ____________________

Grade ____________________

Here are some multiple-choice questions about the vision unit. Try to answer each question as well as you can by filling in the blank with the correct response. If you don't know the answer to a question, make your best guess. Be sure to have an answer for every question.

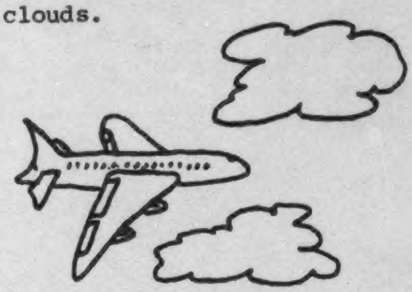
You'll have 15 minutes to answer Part II. If you finish early, hand in your paper.

____ 1. When a moth on a log is difficult to see because it blends with the background, the term that describes this is

a) overlap.
b) autokinetic effect.
c) retinal disparity.
d) camouflage.

____ 2. How could you draw the picture of the plane using a monocular cue to show that the jet is closer than the clouds.

a) cover a cloud with part of the jet
b) draw the sun below the jet
c) draw the jet smaller
d) cover the jet with part of a cloud



____ 3. A lens that is flat on one side and curves inward on the other side is called

a) convex.
b) double concave.
c) double convex.
d) concave.

____ 4. What does a lens of an eye do?

a) regulates the amount of light
b) focuses an image
c) reflects light
d) passes the image to the brain

____ 5. When you are looking at a picture the part that stands out is called

a) ground.
b) illusion.
c) figure.
d) set.

6. Place the letter of the term describing part of the eye in the blank next to the term for the part of the camera which matches it.

a) cornea
b) brain
c) lens
d) optic nerve
e) retina
f) iris

____ diaphragm

____ television

____ audio-visual cable

____ 7. Refraction is when light

a) disappears.
b) changes colour.
c) bends.
d) bounces off an object.

____ 8. Which prefix means two things to see with?

a) mono
b) multi
c) para
d) bi

____ 9. A magnifying glass is an example of what kind of lens?

a) double convex
b) concave
c) double concave
d) convex

____ 10. Autokinetic effect occurs when

a) something appears to move when it really is still.
b) the eye is moving.
c) one eye sees a slightly different picture than the other.
d) light moves very quickly.

____ 11. Parallax means

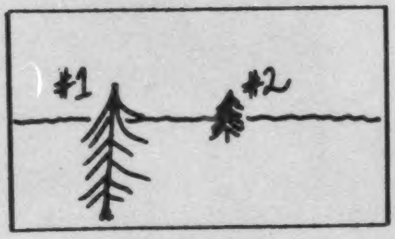
a) the inverted image appears correct to the brain.
b) muscles in the eye adjust the focal point within the eyeball.
c) the eyeball moves to follow a moving object.
d) that each eye creates a different image of the same object.

____ 12. The band of colours produced when light passes through a prism is called

a) an inversion of light.
b) a reflection of light.
c) a spectrum.
d) an illusion.

____ 13. When you look at this picture, you know that tree #2 is behind tree #1 because of

- a) visual memory.
- b) a monocular cue.
- c) parallax.
- d) set .



Mr. Dixon - Class B

VISION Multiple-Choice Test

Answer Key

Item	Correct Answer	Item	Correct Answer
1	D	8	D
2	A	9	A
3	D	10	A
4	B	11	D
5	C	12	C
6 a	F	13	B
b	B		
c	D		
7	C		

Mr. Dixon - Class B

VISION Multiple-Choice Test Items from Each Lesson

	LESSONS					
	1	2	3	4	5	6
ITEMS:	6a	8	2	1	3	
	6b		11	5	7	
	6c		13	10	9	
	4				12	

VISION Essay Test Items from Each Lesson

	LESSONS					
	1	2	3	4	5	6
ITEMS:	1		2		3	

Ecology Part I

Mr. Dixon

Class B

Name ____________________

Grade ___________________

Division ________________

Here are some short essay questions about the material in the unit on ecology. Try to answer each one as well as you can. You will have 20 minutes to answer Part I. If you finish early, hand in Part I and you will be given Part II.

1. What are three factors which affect a biome? How does each factor have it's effect?

2. Draw and label the parts of a simple food chain. Give an example of each part.

3. What is ecological succession? Give an example and describe the stages and the factors that influence the succession.

Mr. Dixon - Class B

ECOLOGY Essay One: Model Answer

What are three factors which affect a biome? How does each factor have its effect?

Concept	Ideal Answer	Points
Factors affecting biome		
1. statement of climate	--	1
2. statement of soil	--	1
3. statement of man	--	1
4. effects of climate	Too much sun and not enough rain would dry up the land.	1
5. effects of soil	No correct response submitted.	1
6. effects of man	Putting chemicals or garbage in river, pond, etc., kills so many animals or fish.	1

Concept	Examples from Essays	Points Awarded
Factors affecting biome		
1. statement of climate	weather	1
	the 3 effects are the water and the sand	0
	air - we breathe it	0
2. statement of soil	if there is too much rain or sun it is too wet or too dry	1
	desert	0
3. statement of man	dirt	1
	plants grow in it	0
4. effects of climate	it doesn't have water in the desert	1
	the insect eats the plants if there is nothing to eat	0
5. effects of soil	pollution	1
6. effects of man	no further responses	-

Mr. Dixon - Class B

ECOLOGY Essay Two: Model Answer

Draw and label the parts of a simple food chain. Give an example of each part.

Concept	Ideal Answer	Points
Label		
1. producer	--	1
2. consumer 1	--	1
3. consumer 2	--	1
4. decomposer	--	1
Example of		
5. producer	plant	1
6. consumer 1	insects eat plants	1
7. consumer 2	birds or frogs eat insects	1
8. decomposer	remains turn into soil	1

Concept	Examples from Essays	Points Awarded
Label		
1. producer	No further responses given.	-
2. consumer 1	No further responses given.	-
3. consumer 2	No further responses given.	-
4. decomposer	No further responses given.	-
Example of		
5. producer	sun feeds plants	1
	fly	0
	throw away garbage	0
6. consumer 1	bug eats plant	1
	insects	1
	pig eats garbage	0
7. consumer 2	hawk eats snake	1
	we eat pig	1
	man kills hawk	0
	boil the carrot	0
8. decomposer	cats die	0
	manure - then start over	0
	owl turns to compost	1

Mr. Dixon - Class B

ECOLOGY Essay Three: Model Answer

What is ecological succession? Give an example and describe the stages and the factors that influence succession.

Concept	Ideal Answer	Points
1. definition of succession	Ecological succession is change in a thing and its surroundings.	1
2. stage 1	it can start out as a lake	1
3. stage 2	grass and bushes grow	1
4. stage 3	trees and animals	1
Factors affecting change-succession		
5. climate	water, hotness or coldness	1
6. soil	you have dirt	1
7. man	pollution - smoke, air, gases	1

Concept	Examples from Essays	Points Awarded
1. definition of succession	succession is like life changing	1
	it is that food chains build up	0
	to make the world better	0
2. stage 1	a desert might change ...	1
	sand dunes have less sand and more bugs	0
3. stage 2	plants	0
	desert could turn into forests if there is water underneath	0
4. stage 3	trees grow and it becomes a forest	1
Factors affecting change-succession		
5. climate	No other responses given.	-
6. soil	No other responses given.	-
7. man	No other responses given.	-

Ecology Part II

Mr. Dixon

Class B

Name ____________________

Grade ____________________

Division ____________________

Here are some multiple-choice questions about the ecology unit. Try to answer each question as well as you can by filling in the blank with the correct response. If you don't know the answer to a question, make your best guess. Be sure to have an answer for every question.

You'll have 15 minutes to answer Part II. If you finish early, hand in your paper.

____ 1. If a living thing makes its own food, it is called

a) a producer.
b) a 1st order consumer.
c) a decomposer.
d) prey.

____ 2. The climate of an ecosystem has two basic parts. What are these two parts?

a) soil type; temperature
b) moisture, temperature
c) soil type, moisture
d) altitude, temperature

____ 3. A bird gets energy from eating sunflower seeds. Later, a cat gets energy from eating the bird. These events make up

a) a predator-prey relationship.
b) a food chain.
c) an ecosystem.
d) a biome.

____ 4. Immigration of a swarm of bees into a park would result in

a) an increase in the bee population.
b) a decrease in predators of bees.
c) an increase in diseases that kill bees.
d) a change in the energy flow.

____ 5. When whales eat very small animals, they are participating in a

a) predator-prey relationship.
b) good-bad relationship.
c) benefit-no difference relationship.
d) mutual benefit relationship.

____ 6. A complex relationship involving many plants and animals that feed on each other is called a

a) feeding relationship.
b) habitat.
c) food chain.
d) food web.

____ 7. What is the main role of decomposers in the ecosystem?

a) they create energy
b) they return heat to the environment
c) they recycle matter from dead things for use by other things
d) they decrease the mineral supply in the environment

____ 8. When a robin eats blueberries, the robin is called a

a) producer.
b) decomposer.
c) consumer.
d) predator.

____ 9. A collection of populations of different species that depend on each other and live in the same area is called a

a) community.
b) population.
c) food web.
d) habitat.

____ 10. Which of the following is a good example of an ecological community?

a) whales, frogs, lizards, and seaweed
b) deer, berry bushes, wolves and bacteria
c) moss, cactus, rabbits and salmon
d) pine trees, salamanders, spiders and porpoises

____ 11. Energy that flows in the ecosystem moves in a very important way. This energy moves from

a) consumers to producers and back again.
b) sun to decomposers.
c) plants to producers.
d) producers to consumers.

____ 12. When the types of plants in an environment change from small shrubs to large trees over a hundred years, the process is called

a) equilibrium.
b) population advancement.
c) succession.
d) regeneration.

____ 13. The climax stage is when

a) the climate is most extreme.
b) there are mostly green plants.
c) there are the most consumers.
d) the vegetation does not change over time.

____ 14. Which of the following is an example of a biome?

a) a dead tree
b) a pond in a rain forest
c) a community of rabbits
d) the world's coniferous forests

____ 15. Which of these would be a man made influence of succession?

a) fire caused by lightning
b) immigration of predators into the meadow
c) a long dry spell
d) introduction of irrigation

____ 16. Frogs eat insects. When humans spray insects and the frogs die, this is an example of

a) ripple effect.
b) conservation.
c) succession.
d) evolution.

____ 17. Ecology is the study of the relationship between

a) people and animals.
b) plants and animals.
c) living and non-living things.
d) the flow of energy in an environment.

____ 18. What factor causes succession to stop in the desert biome?

a) altitude
b) climate
c) climax vegetation
d) latitude

____ 19. Which of these is an example of an ecosystem?

a) air currents
b) a flood
c) the ocean
d) a man studying insects

____ 20. One thing that trees add to the environment is

a) oxygen.
b) minerals.
c) carbon dioxide.
d) energy.

____ 21. The term which refers to the earth, its living things and its atmosphere is

a) environment.
b) ecosphere.
c) biome.
d) community.

____ 22. Which phrase means the same as 'the earth has all of its own raw materials except the sun's energy'?

a) The earth conserves energy.
b) The earth is ecological.
c) The earth is in equilibrium.
d) The earth is a closed system.

____ 23. Which one of the following is a toxic material?

a) decomposer
b) clorophyll
c) insect spray
d) dead grass

____ 24. The careful use of natural resources by humans is called

a) exploitation.
b) ecology.
c) conservation.
d) science.

Mr. Dixon - Class B

ECOLOGY Multiple-Choice Test

Answer Key

Item	Correct Answer	Item	Correct Answer
1	A	13	D
2	B	14	D
3	B	15	D
4	A	16	A
5	A	17	C
6	D	18	B
7	C	19	C
8	C	20	A
9	D	21	B
10	B	22	D
11	B	23	B
12	C	24	C

Mr. Dixon - Class B

ECOLOGY Multiple-Choice Test
Items from Each Lesson

	LESSONS							
	1	2	3	4	5	6	7	8
ITEMS:	17	1	3T	5	12T	2T	4	21
	19	7	6T	9T	13T	14T	16	22T
	20T	11T	8T	10	18	15	23	24

Note: T means that the content in the item was tagged with an instructional stimulus during the lesson.

ECOLOGY Essay Test
Items from Each Lesson

<table>
<tr><th></th><th colspan="8">LESSONS</th></tr>
<tr><th></th><th>1</th><th>2</th><th>3</th><th>4</th><th>5</th><th>6</th><th>7</th><th>8</th></tr>
<tr><td>ITEMS:</td><td></td><td colspan="2">1</td><td colspan="2">2</td><td colspan="2">3</td><td></td></tr>
</table>

Mr. Dixon - Class B

Concepts	Number of Times Concept was Taught	Number of Times Concept was Tagged
ECOLOGY: Lesson One		
1. ecology	1	
2. ecosystem	1	1
3. environment	1	
4. relationship	1	
5. oxygen	1	
6. What a tree gives to its environment.	1	1
7. What a tree takes from its environment.	1	1
ECOLOGY: Lesson Two		
1. energy	2	
2. energy flow	1	1
3. energy pyramid	1	
4. producers	1	
5. decomposers	1	
6. food chain	1	
7. chlorophyll	1	
ECOLOGY: Lesson Three		
1. food web	1	2
2. producers	4	
3. consumers	3	
4. decomposers	2	
5. predator-prey relationship	2	1
6. energy flow	1	
7. dependence	1	
8. populations	1	
ECOLOGY: Lesson Four		
1. community	2	1
2. temperature	2	
3. environmental factors	1	
4. climate and soil	1	
5. hibernation	1	
6. balance of nature	1	1
ECOLOGY: Lesson Five		
1. succession	1	1
2. succession stages	1	1
3. climax vegetation	1	1

Mr. Dixon - Class B

Concepts	Number of Times Concept was Taught	Number of Times Concept was Tagged
ECOLOGY: Lesson Six		
1. biome	2	1
2. climate		
3. weather	2	
4. soil types	1	1
5. factors affecting biomes	1	
6. Arctic biome	1	
7. man's effect on biomes	1	
ECOLOGY: Lesson Seven		
1. pollution	2	
2. pollutants	1	
3. balance of nature	1	
4. ripple effect	2	
5. examples of pollution	1	
6. toxic material	2	
7. effects of pollution	1	
8. sound pollution	1	
9. air pollution	1	
ECOLOGY: Lesson Eight		
1. ecological responsibility	2	
2. conservation	1	
3. earth is a closed system	2	1
4. ecosphere	1	
5. atmosphere	1	
6. gravity	1	
7. life supporting gases	1	

APPENDIX H

ICR Aptitude and Achievement Measures for Classes C, D, and E, Study IV

Note: Three sheets common to all classes participating in the project are not duplicated here. They can be found in Appendix F and are titled:

(1) Instructions for Student IS-ICR Aptitude Testing for Research Assistants

(2) Set Induction Before Handing Out Aptitude Test Forms

(3) Achievement Tests for Hearing: Notes for Teachers

Notes on ICR Aptitude and Achievement Measures for Classes C,D, and E

Because one teacher, Mrs. Christy, taught each of classes C, D, and E, economies were sometimes possible in constructing measures of achievement that were valid reflections of the curricula taught in the separate classes. Listed below, in the order that they appear in this Appendix, are the measures that are common and idiosyncratic among the three classes and measures that were idiosyncratic to each class. Common items are included only once in this Appendix.

ICR Aptitude Test and Answer Key	idiosyncratic for each class
Hearing Unit	
Essay Test and Model Answers	common across classes C, D, and E
Multiple-choice Test and Answer Key	common across classes C, D, and E
Items from each lesson	common across classes C, D, and E
Vision Unit	
Essay Test and Model Answers	common across classes C, D, and E
Multiple-choice Test and Answer Key	common across classes C, D, and E
Items from each lesson	common across classes C, D, and E
Ecology Unit	
Essay Test and Model Answers	common across classes C, D, and E
Multiple-choice Test, Answer Key and Concepts Taught and Tagged	idiosyncratic for each class
Items from each lesson	idiosyncratic for each class

Mrs. Christy

Name ____________

Class C

Grade ____________

This is like a regular multiple-choice test. We will show you last Wednesday's lesson about hearing on the TV. We will stop the videotape sometimes. When we stop the videotape, read the choices for the question number I will say. The choices describe different ways that Mrs. Christy might have wanted you to be thinking right at the place where we stopped the tape. Choose the answer that YOU think is right. Make sure you answer every question. Check the line next to your choice. Please look at me as soon as you have answered the question so I will know when we can start the tape again.

Now, watch the television and I will show a very short bit of teaching. When the tape is over, look at the example below and check the line next to your choice.

1. How did this teacher want you to think NOW?

_____ Figure out the rule.

_____ Memorize the sentence.

_____ Make up an example like this one.

Sometimes I will play a couple of minutes of tape before stopping it again; sometimes I will play only 5 or 10 seconds. Pay very close attention to the videotape at all times that it is on.

Now, I will play the tape. When I stop it, check the line next to the way you think this teacher wanted you to think right at the place I stopped the tape.

Mrs. Christy's Class C IS-ICR Aptitude Test

1. How does Mrs. Christy want you to think now?

_____ A. Say this idea once or twice in your mind.
_____ B. Try to remember something in particular.
_____ C. Check to see if you understand what you have learned.
_____ D. Listen carefully to what the next students say.

2. How does Mrs. Christy want you to think now?

_____ A. Say this idea once or twice in your mind.
_____ B. Figure out what is the same and different about the two ideas.
_____ C. Think what is the same about the terms and a diagram.
_____ D. Pay close attention to the very next thing.

3. How does Mrs. Christy want you to think now?

_____ A. Figure out what is the same and different about the two ideas.
_____ B. Remember the key parts of an idea and use them to get an answer
_____ C. Say this idea once or twice in your mind.
_____ D. Check to see if you understand what you have learned.

4. How does Mrs. Christy want you to think now?

_____ A. Listen carefully to what the next students say.
_____ B. Check to see if you understand what you have learned.
_____ C. Pay close attention to the very next thing.
_____ D. Try to remember something in particular.

5. How does Mrs. Christy want you to think now?

_____ A. Say this idea once or twice in your mind.
_____ B. Listen carefully to what the next students say.
_____ C. Think what is the same about the term and a sound.
_____ D. Pay close attention to the very next thing.

6. How does Mrs. Christy want you to think now?

_____ A. Say this idea once or twice in your mind.
_____ B. Figure out what is the same and different about the two ideas.
_____ C. Check to see if you understand what you have learned.
_____ D. Try to remember something in particular.

7. How does Mrs. Christy want you to think now?

_____ A. Remember the key parts of an idea and use them to get an answer
_____ B. Try to remember something in particular.
_____ C. Check to see if you understand what you have learned.
_____ D. Listen carefully to what the next students say.

8. How does Mrs. Christy want you to think now?

_____ A. Figure out what is the same and different about the two ideas.
_____ B. Think what is the same about the term and a diagram.
_____ C. Try to remember something in particular.
_____ D. Say this idea once or twice in your mind.

9. How does Mrs. Christy want you to think now?

_____ A. Remember the key parts of an idea and use them to get an answer
_____ B. Think what is the same about the term and a diagram.
_____ C. Try to remember something in particular.
_____ D. Check to see if you understand what you have learned.

10. How does Mrs. Christy want you to think now?

_____ A. Say this idea once or twice in your mind.
_____ B. Pay close attention to the very next thing.
_____ C. Listen carefully to what the next students say.
_____ D. Think what is the same about the term and a diagram.

11. How does Mrs. Christy want you to think now?

_____ A. Figure out what is the same and different about the two ideas.
_____ B. Check to see if you understand what you have learned.
_____ C. Listen carefully to what the next students say.
_____ D. Think what is the same about the term and a diagram.

12. How does Mrs. Christy want you to think now?

_____ A. Pay close attention to the very next thing.
_____ B. Remember the key parts of an idea and use them to get an answer
_____ C. Try to remember something in particular.
_____ D. Think what is the same about the term and a diagram.

13. How does Mrs. Christy want you to think now?

_____ A. Say this idea once or twice in your mind.
_____ B. Pay close attention to the very next thing.
_____ C. Figure out what is the same and different about the two ideas.
_____ D. Check to see if you understand what you have learned.

14. How does Mrs. Christy want you to think now?

_____ A. Remember the key parts of an idea and use them to get an answer
_____ B. Try to remember something in particular.
_____ C. Listen carefully to what the next students say.
_____ D. Figure out what is the same and different about the two ideas.

15. How does Mrs. Christy want you to think now?

_____ A. Figure out what is the same and different about the two ideas.
_____ B. Remember the key parts of an idea and use them to get an answer
_____ C. Pay close attention to the very next thing.
_____ D. Say this idea once or twice in your mind.

16. How does Mrs. Christy want you to think now?

_____ A. Pay close attention to the very next thing.
_____ B. Check to see if you understand what you have learned.
_____ C. Think what is the same about the term and a diagram.
_____ D. Try to remember something in particular.

17. How does Mrs. Christy want you to think now?

_____ A. Say this idea once or twice in your mind.
_____ B. Think what is the same about the term and a diagram.
_____ C. Figure what is the same and different about the two ideas.
_____ D. Check to see if you understand what you have learned.

18. How does Mrs. Christy want you to think now?

_____ A. Remember the key parts of an idea and use them to get an answer
_____ B. Figure out what is the same and different about the two ideas.
_____ C. Pay close attention to the very next thing.
_____ D. Try to remember something in particular.

19. How does Mrs. Christy want you to think now?

_____ A. Pay close attention to the very next thing.
_____ B. Remember the key parts of an idea and use them to get an answer
_____ C. Say this idea once or twice in your mind.
_____ D. Think what is the same about the term and a diagram.

20. How does Mrs. Christy want you to think now?

_____ A. Listen carefully to what the next students say.
_____ B. Try to remember something in particular.
_____ C. Think what is the same about the term and a diagram.
_____ D. Figure out what is the same and different about the two ideas.

Mrs. Christy - Class C

Aptitude Test Answer Key

Item	Correct Answer	Item	Correct Answer
1	B	11	D
2	C	12	C
3	A	13	A
4	C	14	D
5	A	15	B
6	A	16	A
7	B	17	D
8	D	18	B
9	B	19	C
10	C	20	D

Mrs. Christy

Name ____________

Class D

Grade ____________

This is like a regular multiple-choice test. We will show you last Wednesday's lesson about hearing on the TV. We will stop the videotape sometimes. When we stop the videotape, read the choices for the question number I will say. The choices describe different ways that Mrs. Christy might have wanted you to be thinking right at the place where we stopped the tape. Choose the answer that YOU think is right. Make sure you answer every question. Check the line next to your choice. Please look at me as soon as you have answered the question so I will know when we can start the tape again.

Now, watch the television and I will show a very short bit of teaching. When the tape is over, look at the example below and check the line next to your choice.

1. How did this teacher want you to think NOW?

_____ Figure out the rule.

_____ Memorize the sentence.

_____ Make up an example like this one.

Sometimes I will play a couple of minutes of tape before stopping it again; sometimes I will play only 5 or 10 seconds. Pay very close attention to the videotape at all times that it is on.

Now, I will play the tape. When I stop it, check the line next to the way you think this teacher wanted you to think right at the place I stopped the tape.

Mrs. Christy's Class D IS-ICR Aptitude Test

1. How does Mrs. Christy want you to think now?

_____ A. Say this idea once or twice in your mind.
_____ B. Try to remember something in particular.
_____ C. Check to see if you understand what you have learned.
_____ D. Listen carefully to what the next students say.

2. How does Mrs. Christy want you to think now?

_____ A. Sav this idea once or twice in your mind.
_____ B. Figure out what is the same and different about the two ideas.
_____ C. Think what is the same about the terms and a diagram.
_____ D. Pay close attention to the very next thing.

3. How does Mrs. Christy want you to think now?

_____ A. Figure out what is the same and different about the two ideas.
_____ B. Remember the key parts of an idea and use them to get an answer
_____ C. Say this idea once or twice in your mind.
_____ D. Check to see if you understand what you have learned.

4. How does Mrs. Christy want you to think now?

_____ A. Listen carefully to what the next students say.
_____ B. Check to see if you understand what you have learned.
_____ C. Pay close attention to the very next thing.
_____ D. Try to remember something in particular.

5. How does Mrs. Christy want you to think now?

_____ A. Say this idea once or twice in your mind.
_____ B. Listen carefully to what the next students say.
_____ C. Think what is the same about the term and a sound.
_____ D. Pay close attention to the very next thing.

6. How does Mrs. Christy want you to think now?

_____ A. Say this idea once or twice in your mind.
_____ B. Figure out what is the same and different about the two ideas.
_____ C. Check to see if you understand what you have learned.
_____ D. Try to remember something in particular.

7. How does Mrs. Christy want you to think now?

_____ A. Remember the key parts of an idea and use them to get an answer
_____ B. Try to remember something in particular.
_____ C. Check to see if you understand what you have learned.
_____ D. Listen carefully to what the next students say.

8. How does Mrs. Christy want you to think now?

_____ A. Figure out what is the same and different about the two ideas.
_____ B. Think what is the same about the term and a diagram.
_____ C. Try to remember something in particular.
_____ D. Say this idea once or twice in your mind.

9. How does Mrs. Christy want you to think now?

_____ A. Remember the key parts of an idea and use them to get an answer
_____ B. Think what is the same about the term and a diagram.
_____ C. Try to remember something in particular.
_____ D. Check to see if you understand what you have learned.

10. How does Mrs. Christy want you to think now?

_____ A. Say this idea once or twice in your mind.
_____ B. Pay close attention to the very next thing.
_____ C. Listen carefully to what the next students say.
_____ D. Think what is the same about the term and a diagram.

11. How does Mrs. Christy want you to think now?

_____ A. Figure out what is the same and different about the two ideas.
_____ B. Check to see if you understand what you have learned.
_____ C. Listen carefully to what the next students say.
_____ D. Think what is the same about the term and a diagram.

12. How does Mrs. Christy want you to think now?

_____ A. Pay close attention to the very next thing.
_____ B. Remember the key parts of an idea and use them to get an answer
_____ C. Try to remember something in particular.
_____ D. Think what is the same about the term and a diagram.

13. How does Mrs. Christy want you to think now?

_____ A. Say this idea once or twice in your mind.
_____ B. Pay close attention to the very next thing.
_____ C. Figure out what is the same and different about the two ideas.
_____ D. Check to see if you understand what you have learned.

14. How does Mrs. Christy want you to think now?

_____ A. Remember the key parts of an idea and use them to get an answer
_____ B. Try to remember something in particular.
_____ C. Listen carefully to what the next students say.
_____ D. Figure out what is the same and different about the two ideas.

15. How does Mrs. Christy want you to think now?

_____ A. Figure out what is the same and different about the two ideas.
_____ B. Remember the key parts of an idea and use them to get an answer
_____ C. Pay close attention to the very next thing.
_____ D. Say this idea once or twice in your mind.

16. How does Mrs. Christy want you to think now?

_____ A. Pay close attention to the very next thing.
_____ B. Check to see if you understand what you have learned.
_____ C. Think what is the same about the term and a diagram.
_____ D. Try to remember something in particular.

17. How does Mrs. Christy want you to think now?

_____ A. Say this idea once or twice in your mind.
_____ B. Think what is the same about the term and a diagram.
_____ C. Figure what is the same and different about the two ideas.
_____ D. Check to see if you understand what you have learned.

18. How does Mrs. Christy want you to think now?

_____ A. Remember the key parts of an idea and use them to get an answer
_____ B. Figure out what is the same and different about the two ideas.
_____ C. Pay close attention to the very next thing.
_____ D. Try to remember something in particular.

19. How does Mrs. Christy want you to think now?

_____ A. Pay close attention to the very next thing.
_____ B. Remember the key parts of an idea and use them to get an answer
_____ C. Say this idea once or twice in your mind.
_____ D. Think what is the same about the term and a diagram.

20. How does Mrs. Christy want you to think now?

_____ A. Listen carefully to what the next students say.
_____ B. Try to remember something in particular.
_____ C. Think what is the same about the term and a diagram.
_____ D. Figure out what is the same and different about the two ideas.

Mrs. Christy - Class D

Aptitude Test Answer Key

Item	Correct Answer	Item	Correct Answer
1	B	11	C
2	C	12	A
3	D	13	B
4	A	14	C
5	D	15	C
6	A	16	D
7	A	17	D
8	C	18	B
9	B	19	A
10	D	20	B

Mrs. Christy
Class E

Name ____________
Grade ____________

This is like a regular multiple-choice test. We will show you last Wednesday's lesson about hearing on the TV. We will stop the videotape sometimes. When we stop the videotape, read the choices for the question number I will say. The choices describe different ways that Mrs. Christy might have wanted you to be thinking right at the place where we stopped the tape. Choose the answer that YOU think is right. Make sure you answer every question. Check the line next to your choice. Please look at me as soon as you have answered the question so I will know when we can start the tape again.

Now, watch the television and I will show a very short bit of teaching. When the tape is over, look at the example below and check the line next to your choice.

1. How did this teacher want you to think NOW?

____ Figure out the rule.
____ Memorize the sentence.
____ Make up an example like this one.

Sometimes I will play a couple of minutes of tape before stopping it again; sometimes I will play only 5 or 10 seconds. Pay very close attention to the videotape at all times that it is on.

Now, I will play the tape. When I stop it, check the line next to the way you think this teacher wanted you to think right at the place I stopped the tape.

Mrs. Christy's Class E IS-ICR Aptitude Test

1. How does Mrs. Christy want you to think now?

_____ A. Say this idea once or twice in your mind.
_____ B. Try to remember something in particular.
_____ C. Check to see if you understand what you have learned.
_____ D. Listen carefully to what the next students say.

2. How does Mrs. Christy want you to think now?

_____ A. Say this idea once or twice in your mind.
_____ B. Figure out what is the same and different about the two ideas.
_____ C. Think what is the same about the terms and a diagram.
_____ D. Pay close attention to the very next thing.

3. How does Mrs. Christy want you to think now?

_____ A. Figure out what is the same and different about the two ideas.
_____ B. Remember the key parts of an idea and use them to get an answer
_____ C. Say this idea once or twice in your mind.
_____ D. Check to see if you understand what you have learned.

4. How does Mrs. Christy want you to think now?

_____ A. Listen carefully to what the next students say.
_____ B. Check to see if you understand what you have learned.
_____ C. Pay close attention to the very next thing.
_____ D. Try to remember something in particular.

5. How does Mrs. Christy want you to think now?

_____ A. Say this idea once or twice in your mind.
_____ B. Listen carefully to what the next students say.
_____ C. Think what is the same about the term and a sound.
_____ D. Pay close attention to the very next thing.

6. How does Mrs. Christy want you to think now?

_____ A. Say this idea once or twice in your mind.
_____ B. Figure out what is the same and different about the two ideas.
_____ C. Check to see if you understand what you have learned.
_____ D. Try to remember something in particular.

7. How does Mrs. Christy want you to think now?

_____ A. Remember the key parts of an idea and use them to get an answer
_____ B. Try to remember something in particular.
_____ C. Check to see if you understand what you have learned.
_____ D. Listen carefully to what the next students say.

8. How does Mrs. Christy want you to think now?

_____ A. Figure out what is the same and different about the two ideas.
_____ B. Think what is the same about the term and a diagram.
_____ C. Try to remember something in particular.
_____ D. Say this idea once or twice in your mind.

9. How does Mrs. Christy want you to think now?

_____ A. Remember the key parts of an idea and use them to get an answer
_____ B. Think what is the same about the term and a diagram.
_____ C. Try to remember something in particular.
_____ D. Check to see if you understand what you have learned.

10. How does Mrs. Christy want you to think now?

_____ A. Say this idea once or twice in your mind.
_____ B. Pay close attention to the very next thing.
_____ C. Listen carefully to what the next students say.
_____ D. Think what is the same about the term and a diagram.

11. How does Mrs. Christy want you to think now?

_____ A. Figure out what is the same and different about the two ideas.
_____ B. Check to see if you understand what you have learned.
_____ C. Listen carefully to what the next students say.
_____ D. Think what is the same about the term and a diagram.

12. How does Mrs. Christy want you to think now?

_____ A. Pay close attention to the very next thing.
_____ B. Remember the key parts of an idea and use them to get an answer
_____ C. Try to remember something in particular.
_____ D. Think what is the same about the term and a diagram.

13. How does Mrs. Christy want you to think now?

_____ A. Say this idea once or twice in your mind.
_____ B. Pay close attention to the very next thing.
_____ C. Figure out what is the same and different about the two ideas.
_____ D. Check to see if you understand what you have learned.

14. How does Mrs. Christy want you to think now?

_____ A. Remember the key parts of an idea and use them to get an answer
_____ B. Try to remember something in particular.
_____ C. Listen carefully to what the next students say.
_____ D. Figure out what is the same and different about the two ideas.

15. How does Mrs. Christy want you to think now?

_____ A. Figure out what is the same and different about the two ideas.
_____ B. Remember the key parts of an idea and use them to get an answer
_____ C. Pay close attention to the very next thing.
_____ D. Say this idea once or twice in your mind.

16. How does Mrs. Christy want you to think now?

_____ A. Pay close attention to the very next thing.
_____ B. Check to see if you understand what you have learned.
_____ C. Think what is the same about the term and a diagram.
_____ D. Try to remember something in particular.

17. How does Mrs. Christy want you to think now?

_____ A. Say this idea once or twice in your mind.
_____ B. Think what is the same about the term and a diagram.
_____ C. Figure what is the same and different about the two ideas.
_____ D. Check to see if you understand what you have learned.

18. How does Mrs. Christy want you to think now?

_____ A. Remember the key parts of an idea and use them to get an answer
_____ B. Figure out what is the same and different about the two ideas.
_____ C. Pay close attention to the very next thing.
_____ D. Try to remember something in particular.

19. How does Mrs. Christy want you to think now?

_____ A. Pay close attention to the very next thing.
_____ B. Remember the key parts of an idea and use them to get an answer
_____ C. Say this idea once or twice in your mind.
_____ D. Think what is the same about the term and a diagram.

20. How does Mrs. Christy want you to think now?

_____ A. Listen carefully to what the next students say.
_____ B. Try to remember something in particular.
_____ C. Think what is the same about the term and a diagram.
_____ D. Figure out what is the same and different about the two ideas.

Mrs. Christy - Class E

Aptitude Test Answer Key

Item	Correct Answer	Item	Correct Answer
1	A	11	A
2	C	12	D
3	A	13	D
4	C	14	C
5	A	15	A
6	B	16	C
7	B	17	B
8	D	18	B
9	D	19	D
10	C	20	B

Hearing Part I

Mrs. Christy

Class C,D,E

Name ______________________

Grade ______________________

Division ______________________

Here are some short essay questions about the material in the unit on hearing. Try to answer each one as well as you can. You will have 20 (twenty) minutes to answer Part I. If you finish early, hand in Part I and you will be given Part II.

1. Name three different things that could cause people to become deaf and describe how each affects parts of the hearing system.

2. a) Draw sound waves that show high and low volume.

high volume

low volume

b) What technical word tells what is different about these two sound waves?

____

3. a) Draw sound waves that show high and low pitch.

high pitch

low pitch

b) What technical word tells what is different about these two sound waves?

____

Mrs. Christy - Classes C, D, E

HEARING Essay One: Model Answer

Name three different things that could cause people to become deaf and describe how each affects parts of the hearing system.

Statement of 3 of the 5 causes	Effect	Points Cause	Points Effect
1. loud noises	prevent vibrations	1	1
2. disease	high fever	1	1
3. heredity	prevent vibrations	1	1
4. struck on the head	damage to the cerebellum could prevent message being interpreted	1	1
5. damage to any part of the ear	prevent vibrations	1	1

Concept - Causes	Examples from Essays	Points Awarded for Cause
1. loud noises	hear loud noises over a long period of time	1
	a lot of noise could break the hammer or damage the other bones	1
2. disease	the mumps could cause high fever and high fever affects your hearing	1
3. heredity	sometimes people are deaf because they inherit it from their parents or relatives	1
	when your parents are deaf and they had you	1
4. struck on the head	a person could be struck on the head and break the hammer or anvil	1
	if you got hit on the head and injure a part of your ear, that could cause a slow deafness	1

5. damage to any vibrating part	another way is that all three of the ossicles could get damaged and couldn't send sound waves through the ear	1

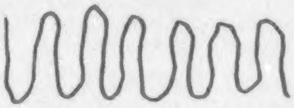
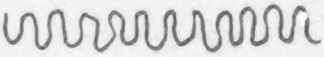
Concept - Effects	Examples from Essays	Points Awarded for Cause
1. loud noises	--	--
2. disease	--	--
3. heredity	if one of your bones have not produced properly that could cause it not to vibrate and it will make you hear distorted sounds	1
4. struck on the head	damage to the cerebellum could have an effect on your brain receiving the message	1
5. damage to any part of the ear	if the hammer is not vibrating properly, then the anvil will not work then it can't go to other parts with the right information to the brain	1
	you could have a ruptured eardrum which if it doesn't vibrate then the three bones will not, so you can't hear	1

Concept - Causes	Unacceptable Answers	Points Awarded
	an illness for the same pressure in the ear and out or not the same pressure builds up and effects some part of the ear	0
	if one of the sound holes gets stuck	0
	another way is that it might get really badly clogged with wax in one ear and they are not able to get it out	0

Mrs. Christy - Classes C, D, E

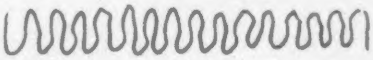
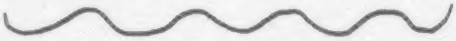
HEARING Essay Two: Model Answer

Draw sound waves that show high and low volume.

Diagram of:	Examples	Points
a) high volume		1
low volume		1
b) technical word which tells what is different about these two sound waves	intensity	1

Mrs. Christy - Classes C, D, E

Draw sound waves that show high and low pitch.

Diagram of:	Examples	Points
a) high pitch		1
low pitch		1
b) technical word which tells what is different about these two sound waves	frequency	

Hearing Part II

Mrs. Christy

Class C,D,E

Name ____________________

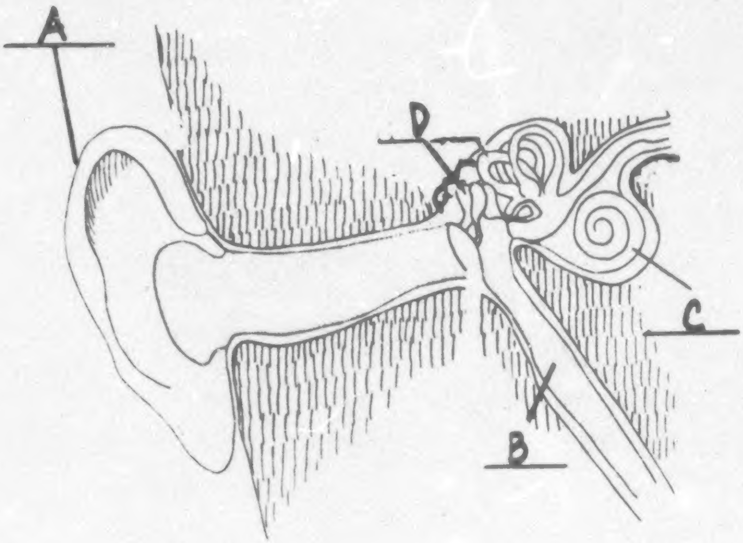
Grade ____________________

Division ____________________

Here are some questions about the hearing unit. Try to answer each question as best as you can by filling in the blank with the correct response. If you don't know the answer to a question, make your best guess. Be sure to have an answer for every question.

You will have 15 (fifteen) minutes to answer these questions. If you finish early, hand in your paper.

1. This diagram labels parts of the ear.



What is A. ________________________________

B. ________________________________

C. ________________________________

D. ________________________________

____ 2. The function of the hair and wax of the outer ear is to

a) alert the ear to incoming sounds.
b) prevent dust from entering the ear.
c) funnel sound waves onto the eardrum.
d) prevent loud sounds from damaging the ear.

____ 3. Which term refers to loudness?

a) pitch
b) wavelength
c) volume
d) direction

____ 4. The number of cycles per second in a wave of sound is called its

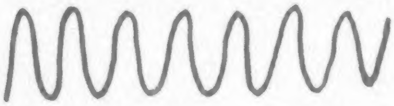
a) frequency.
b) amplitude.
c) volume.
d) intensity.

____ 5. Which of the following refers to timbre?

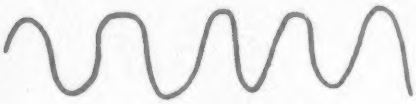
a) the distance a sound travels
b) the quality of sound
c) the difference in the loudness of notes
d) the height of a sound-wave

____ 6. Which diagram shows sound-waves with the lowest pitch?

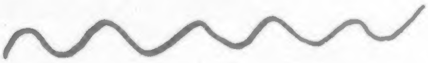
a)



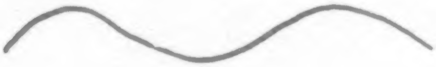
b)



c)



d)



____ 7. Velocity of sound refers to its

a) speed.
b) frequency.
c) loudness.
d) length.

____ 8. When Jill's teacher says, "Class, clear your desk," the students get up to go for lunch. This is an example of a

a) reflex.
b) startle response.
c) learned response.
d) unlearned code.

____ 9. When a book is dropped on the floor, we hear a sound because the

a) air is made to vibrate when the book hits the floor.
b) Eustachian tubes react to sound waves in the air.
c) book amplifies the sound.
d) book and the floor were both solid objects.

____ 10. The unit used to measure the volume of sound is

a) hertz.
b) waves.
c) calories.
d) decibels.

____ 11. Which of the following could cause you to lose your hearing permanently?

a) a cold
b) eustachian tube
c) ear wax
d) mumps

Mrs. Christy - Classes C, D, E

HEARING Multiple-Choice Test

Answer Key

Item	Correct Answer	Item	Correct Answer
1a	pinna	5	B
1b	eustachian tube	6	D
1c	cochlea	7	A
1d	hammer, anvil, stirrup	8	C
2	B	9	A
3	C	10	D
4	A	11	D

Mrs. Christy - Classes C, D & E

HEARING Multiple-Choice Test
Items from each lesson

LESSONS

	1	2	3	4
ITEMS:	1a	2	3	8
	1b	6	4	9
	1c	7	5	11
	1d		10	

HEARING Essay Test
Items from Each Lesson

LESSONS

	1-2	3-4
ITEMS:	1	2

Vision Part I

Mrs. Christy

Class C,D,E

Name ______________________

Grade ______________________

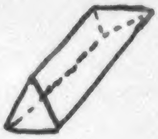
Division ______________________

Here are some short essay questions about the material in the unit on vision. Try to answer each one as well as you can. You will have 20 minutes to answer Part I. If you finish early, hand in Part I and you will be given Part II.

1. Name all the parts of the human eye and describe what each one does.

2. In each box, write the name of a different kind of lens and draw a picture of that lens.

Example:



prism

Lens 1	Lens 2
Lens 3	Lens 4

3. Define nearsightedness and farsightedness and name a lens that would correct each problem.

Mrs. Christy - Classes C, D, E

VISION Essay One: Model Answer

Name all the parts of the human eye and describe what each one does.

Statement of:	Function	Points for Statement	Points for Function
1) muscles	moves the eye	1	1
2) retina	imprints image	1	1
3) pupil	allows light to enter eye	1	1
4) iris	muscle that allows light to enter eye	1	1
5) optic nerve	transmits message to the brain	1	1
6) lens	focuses image	1	1
7) cornea	protects the eyeball	1	1

Concepts - Statement of:	Examples from Essays	Points for Statement	Points for Function
1) muscles	help to move your eye	1	1
	allow the eye to move freely		1
	work in pairs		0
	make the eye blink		0
2) retina	shows the picture of the object being looked at	1	1
	images are sent to it and then turned right side up		1
	protects the fluid		0
	retina is what sends the image to the brain		0
3) pupil	pupil gets bigger or smaller depending on how much light there is	1	1

		focuses on a straight light and let it through		1
		the little black spot in your eye - it helps you see		0
		the part of the eye that you see from		0
4)	iris	opens and closes pupil	1	1
		lets light in		1
		refracts light so it will pass through		0
		colored part of the eye and there is a pupil in the middle of it		0
5)	optic nerve	takes message to the brain	1	1
		sends the images to the brain		1
		a nerve that travels from your eye to your brain - it makes the brain move the muscles in your eye		0
6)	lens	refracts light to the retina	1	1
		makes the light bend so it will reach the retina		1
		gives protection for the eye		0
		is to protect the eye and help you see better		0
7)	cornea	the outer part of your eye that protects from dirt coming in		1
		clear part, lets light in		1
		the transparent part of the eye which has no blood vessels		0
		invisible layer that covers the eyeball and sclera		0

Mrs. Christy - Class C

VISION Essay One: Model Answer

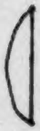
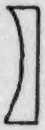
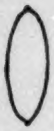
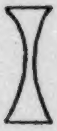
Scoring Manual the same for Class C, as Classes D and E, except that the concept muscles was replaced with the concept eyelid. Below are examples for eyelid.

Concepts	Examples from Essays	Points
1) eyelid	protects the eye from damage like strong light or to moisten your eye by closing	1
	protects the eye	1

Mrs. Christy - Classes C, D, E

VISION Essay Two: Model Answer

In each box, write the name of a different kind of lens and draw a picture of that lens.

Statement of:	Diagram	Points for Statement	Points for Diagram
Single Convex		1	1
Single Concave		1	1
Double Convex		1	1
Double Concave		1	1

Mrs. Christy - Classes C, D, E

VISION Essay Three: Model Answer

Statement of:	Definition	Lens to Correct	Points for Definition	Points for Lens
Nearsightedness	The light focuses short of the. retina.	concave	1	1
Farsightedness	The light focuses beyond the retina.	convex	1	1

Concepts	Examples from Essays	Points for Definition	Points for Lens
Nearsightedness	when the object focuses before the retina	1	
	when the focus of the object that is being looked at is focused in front of the retina	1	
	... light does not quite reach the retina	0	
	cannot see near	0	
Lens	concave		1
	convex		0
Farsightedness	when the image is focused behind the retina	1	
	when the light focuses past the retina	1	
	cannot see far	0	
	... when you can't see anything faraway so that you have to see something very close	0	
Lens	convex		1
	concave		0

Vision Part II

Mrs. Christy

Class C,D,E

Name ____________________

Grade ____________________

Division ____________________

Here are some questions about the vision unit. Try to answer each question as best as you can by filling in the blank with the correct response. If you don't know the answer to a question, make your best guess. Be sure to have an answer for every question.

You will have 15 (fifteen) minutes to answer these questions. If you finish early, hand in your paper.

1. Fill in the blank with the letter of the term that best matches the part of the camera.

____ film

____ shutter

____ diaphram

A. iris
B. optic nerve
C. retina
D. eyelid
E. pupil
F. eyeball

____ 2. The band of colors produced when light passes through a prism is called

a) an illusion.
b) a spectrum.
c) a reflection.
d) an inversion.

____ 3. The optic nerve

a) moves the eyeball to focus on different objects.
b) reflects light to the retina.
c) refracts light to the cornea.
d) sends messages from the retina to the brain.

____ 4. If you put a pencil in a glass of water and look down along the pencil into the water, the pencil seems to bend at the water line. This bending of light rays is known as

a) magnification.
b) reflection.
c) radiation.
d) refraction.

____ 5. A moth on a log is difficult to see because it blends with the background. The term that describes this is

a) camouflage.
b) overlap.
c) retinal disparity.
d) optical illusion.

____ 6. Blinking cleans your eye by

a) spreading oil from the back of the eyelid.
b) moving all the dirt to the bottom.
c) squeezing out a tear to wash it.
d) shutting out light.

____ 7. When you look into a mirror, what you really see is

a) a virtual image.
b) a reversed image.
c) an inverted image.
d) a concave image.

____ 8. A mirage is caused by

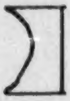
a) colorblindness.
b) reflection.
c) an eye defect.
d) refraction.

____ 9. The place where all the rays come together on the retina to form an image is called the

a) focus.
b) spectrum.
c) blind spot.
d) impression.

____ 10. The lens pictured to the right is

a) single concave.
b) single convex.
c) double concave.
d) double convex.



____ 11. A periscope allows us to see around and over obstacles by using

a) prisms.
b) lights.
c) mirrors.
d) diaphrams.

____ 12. A lens that separates wavelengths of light into a color spectrum is

a) spherical.
b) convex.
c) concave.
d) prismatic.

____ 13. If you suddenly get a piece of dust in your eye and blink, this is called

a) a voluntary reaction.
b) a reflex.
c) a focusing action.
d) an acquired behaviour.

Mrs. Christy - Classes C, D, E

VISION Multiple-Choice Test

Answer Key

Item	Correct Answer	Item	Correct Answer
1a	C	7	B
1b	D	8	B
1c	A	9	A
2	B	10	A
3	D	11	C
4	D	12	D
5	A	13	B
6	C		

Mrs. Christy - Class C, D, E

Vision Multiple-Choice Test
Items from each lesson

LESSON

	1	2	3	4	5	6
ITEMS:	5	1a	4	2	7	6
	8	1b	9	10	10	13
		1c			11	
		3				

Vision Essay Test
Items from each lesson

LESSON

	1 - 2	3 - 4		5 - 6
ITEMS:	1	2	3	

Ecology Part I

Mrs. Christy

Class C, D, E

Name ______________________

Grade ______________________

Here are some short essay questions about the material in the unit on ecology. Try to answer each one as well as you can. You will have 20 minutes for Part I. If you finish early, hand in Part I and you will be given Part II.

1. Define an ecological relationship. How are commensalism and mutualism similar and different? Give an example of each.

2. Describe the steps of photosynthesis.

3. State two advantages and two disadvantages of using solar energy in Burnaby.

Mrs. Christy - Classes C, D, E

ECOLOGY Essay One: Model Answer

Define an ecclogical relationship. How are commensalism and mutualism similar and different? Give an example of each.

Concepts	Ideal Answer	Points
1. + 2. ecological relationships	a) two partners	1
	b) one affects the other	1
3. commensalism; mutualism - similarity	both have two partners	1
4. commensalism; mutualism - difference	partners help each other; one is helped, the other is neither helped nor harmed	1
5. example of commensalism	remora fish and shark	1
6. example of mutualism	bee and flower	1

Concepts	Examples from Essays	Points Awarded
1. + 2. ecological relationship	an ecological relationship is something that must have two partners and each must affect the other in some way	1 1
	ecological relationship is the relationship between one living thing to another living thing	0 0
	an ecological relationship is when two living things are friends and they are not enemies	1 0
3. commensalism - similarity	both have two partners	1
	two partners and no one gets hurt	1
4. commensalism; mutualism - differences	In commensalism one helps the other to survive. In mutualism both help eacn other to survive.	1

	In commensalism one is helped, the other is not harmed and in mutualism both are helped, neither are harmed.	1
	Mutualism means that partners help each other and neither are harmed. Commensalism is animals. one trying to kill and eat the other.	0
5. commensalism	remora fish & shark	1
	lynx and rabbit	0
	owl and fish	0
	dog and worm	0
6. mutualism	flower and bee	1
	squirrel and chipmunk	0

Mrs. Christy - Classes C, D, E

ECOLOGY Essay Two: Model Answer

Describe the steps of photosynthesis.

Concept	Steps	Points
photosynthesis	a) sun	1
	b) leaf	1
	c) chlorophyll	1
	d) carbon dioxide	1
	e) transpiration	1
	f) starches and carbohydrates	1

Concept	Examples from Essays	Points Awarded
a) sun	plant takes sun's energy	1
	not mentioned	0
b) leaf	diagram of leaf	1
	not mentioned	0
c) chlorophyll	plant uses chlorophyll	1
	chlorophyll	0
	not mentioned	0
d) carbon dioxide	plant takes in carbon dioxide	1
	not mentioned	0
e) transpiration	plant gives off oxygen	1
	plant expels oxygen	1
	plant exhales	0
	not mentioned	0
f) starches and carbohydrates	plant uses energy to make food	1
	not mentioned	0

Mrs. Christy - Classes C, D, E

ECOLOGY Essay Three: Model Answer

State two advantages and two disadvantages of using solar energy in Burnaby.

Concept	Ideal Answer	Points
Solar Energy:		
advantages	1. clean	1
	2. efficient (reusable)	1
disadvantages	1. requires large storage area	1
	2. sunlight variable in Vancouver	1
	3. expensive	1

Concept	Examples from Essays	Points Awarded
Solar Energy:		
advantages		
1. clean	solar energy's advantages are that it is clean	1
2. efficient (reusable)	the advantages are that it can be used over and over again	1
disadvantages		
1. requires a large storage area	you need a lot of room to store the electricity	1
	one disadvantage for solar energy is you need lots of room to store the tanks	1
2. sun is variable in the winter	we don't have enough sun in the winter	1
3. expensive	one of the disadvantages of solar energy is that it costs a lot of money	1
	the disadvantage is that it is costly	1

Concept	Unacceptable Answers	Points Awarded
advantages	your electricity bill will be down	0

	one advantage of having solar energy is that we have a good hot summer	0
disadvantages	a disadvantage of solar energy is that it might take longer to work	0
	you could get too much of it and it could do some damage	0

Ecology Part II

Mrs. Christy

Class C

Name ____________________

Grade ____________________

Here are some questions about the ecology unit. Try to answer each question as best as you can by filling in the blank with the correct response. If you don't know the answer to a question, make your best guess. Be sure to have an answer for every question.

You will have 15 (fifteen) minutes to answer these questions. If you finish early, hand in your paper.

____ 1. The deer on Burnaby mountain eat leaves and grass. They can be called

a) producers.
b) herbivores.
c) predators.
d) carnivores.

____ 2. Carbon dioxide is made up of carbon and oxygen. This is an example of

a) a cycle.
b) an element.
c) a relationship.
d) a compound.

____ 3. The material from which coal is formed is

a) rocks.
b) animals.
c) plants.
d) shells.

____ 4. Tapeworms live in the intestines of host animals and live on the nutrients of their hosts. This is an example of what kind of relationship?

a) mutualism
b) amensalism
c) commensalism
d) competitive

____ 5. Black squirrels and brown squirrels live in Stanley Park. They live in the same trees and eat the same food. This is an example of what kind of relationship?

a) competitive
b) mutualism
c) commensalism
d) predation

____ 6. All living things include which of the following elements?

a) nitrogen, dioxide, calcium, hydrogen
b) nitrogen, carbon, chlorophyll, oxygen
c) nitrogen, carbon, oxygen, hydrogen
d) nitrogen, chlorophyll, calcium, carbon

____ 7. A collection of populations that depend on each other and live in the same area is called a

a) population.
b) community.
c) food web.
d) habitat.

____ 8. The chemical made by plants to use in photosynthesis is

a) carbon dioxide.
b) carbohydrates.
c) chlorophyll.
d) oxygen.

____ 9. Which of the following is a non-renewable source of energy?

a) wood
b) wind
c) oil
d) water

____ 10. Which of the following is the definition of an ecological relationship?

a) two partners and each affects the other
b) a collection of things which are living and non-living
c) interacting populations in one area
d) partners living in the same community but not related to each other

____ 11. A large land area which has the same kind of climate and soil is called

a) a community.
b) a population.
c) an ecosystem.
d) a biome.

____ 12. Nodules on bean plants contain

a) second-order consumers.
b) nitrogen fixing bacteria.
c) chlorophyll.
d) scavengers.

____ 13. Energy that is active and moving is called

a) kinetic. b) potential.
c) chlorophyll. d) chemical.

____ 14. What do decomposers do in the ecosystem?

a) They release matter from dead organisms for use by other organisms.
b) They use heat in the environment.
c) They return energy to the environment for use by the producers.
d) They decrease the mineral supply in the environment.

____ 15. Mosses and reindeer live in which biome?

a) tundra
b) grassland
c) deciduous forest
d) rain forest

____ 16. The science of ecology mainly explores the

a) ways to conserve energy.
b) problems of pollution and overpopulation.
c) relationships between living and non-living things.
d) nature of living things.

____ 17. A brown bear eats berries, field mice, honey and fish. The best description of a brown bear is a

a) multi-level consumer.
b) scavenger.
c) decomposer.
d) herbivore.

____ 18. A complex relationship involving many plants and animals that feed on each other is called a food

a) chain.
b) web.
c) habitat.
d) relationship.

____ 19. Hydrogen is an example of a/an

a) element.
b) molecule.
c) starch.
d) compound.

____ 20. The sun is an excellent source of energy because it is

a) recycled.
b) radiant.
c) large.
d) renewable.

____ 21. The energy producers in all food chains are

a) animals that contain chlorophyll.
b) small scavengers.
c) bacteria.
d) green plants.

____ 22. Lichen that grows on rocks is really made up of two living things. The first one makes sap that the second one eats, while the second one collects water for the first one. This is an example of what kind of relationship?

a) predation
b) commensalism
c) competitive
d) mutualism

____ 23. The materials from which oil is formed are

a) rocks and shells.
b) plants and animals.
c) plants and rocks.
d) animals and rocks.

____ 24. Two of the advantages of solar energy are that it is

a) clean and non-renewable.
b) clean and efficient.
c) renewable and easily stored.
d) efficient and easily stored.

Mrs. Christy - Class C

ECOLOGY Multiple-Choice Test

Answer Key

Item	Correct Answer	Item	Correct Answer
1	B	13	A
2	D	14	A
3	C	15	A
4	B	16	C
5	A	17	A
6	C	18	B
7	B	19	A
8	C	20	D
9	C	21	D
10	A	22	D
11	D	23	B
12	B	24	B

Mrs. Christy - Class C

Concepts	Number of Times Concept was Taught	Number of Times Concept was Tagged
ECOLOGY: Lesson One		
1. ecology	1	1
2. community	1	1
3. atmosphere	1	1
4. hydrosphere	1	
5. lithosphere	1	
6. biosphere	1	1
7. all living things made up of elements		
a) nitrogen	2	
b) carbon	2	
c) oxygen	2	
d) hydrogen	2	
8. ecological relationships		
- definition	2	
a) neutralism	1	
b) commensalism	1	
c) mutualism	1	
d) amensalism	1	
- predation	1	
- parasitism	1	
e) competitive	1	
ECOLOGY: Lesson Two		
1. ecology	1	
2. ecological relationships		
- definition	1	1
a) amensalism	1	
b) mutualism	1	
3. ecologist	1	
4. ecosystem	1	1
5. cycles	1	1
6. potential energy	1	1
7. kinetic energy	1	1
ECOLOGY: Lesson Three		
1. potential energy	2	1
2. kinetic energy	2	1
3. photosynthesis		
a) leaf	1	
b) chlorophyll	1	1
c) carbon dioxide	1	
d) transpiration	2	
e) carbohydrates	1	
4. plants as producers	2	1

Mrs. Christy - Class C

Concepts	Number of Times Concept was Taught	Number of Times Concept was Tagged
5. consumers	2	1
6. herbivores	1	1
7. carnivores	1	1
ECOLOGY: Lesson Four		
1. consumers	1	1
2. scavengers		
3. decomposers	2	1
4. compounds	1	1
5. elements	1	1
6. carbon cycle	1	
7. nitrogen cycle	1	
8. food chain	1	
9. water cycle	1	
10. oxygen cycle	1	
ECOLOGY: Lesson Five		
1. kinetic energy	1	1
2. potential energy	1	1
3. renewable resources	2	
4. non-renewable resources	2	
5. coal formed by dead plants	1	1
6. oil formed by dead plants and animals	1	1
7. food web	1	1
8. food chain	1	1
ECOLOGY: Lesson Six		
1. renewable resources	1	1
2. non-renewable resources	1	1
3. solar energy		
a) advantages	1	1
b) disadvantages	2	2
4. food web	1	
5. biomes	1	
a) tundra	1	1
b) coniferous	1	1
c) deciduous	1	1
d) rain forest	1	1
e) grassland	1	1
f) desert	1	1

Ecology Part II Name ____________________

Mrs. Christy Grade ____________________

Class D

Here are some questions about the ecology unit. Try to answer each question as best as you can by filling in the blank with the correct response. If you don't know the answer to a question, make your best guess. Be sure to have an answer for every question.

You will have 15 minutes to answer these questions. If you finish early, hand in your paper.

____ 1. Black squirrels and brown squirrels live in Stanley Park. They live in the same trees and eat the same food. This is an example of what kind of relationship?

a) mutualism
b) competitive
c) predation
d) commensalism

____ 2. When whales eat microscopic animals, they are participating in what kind of a relationship?

a) predation
b) mutualism
c) commensalism
d) competitive

____ 3. Nodules on bean plants contain

a) chlorophyll.
b) second-order consumers.
c) nitrogen fixing bacteria.
d) scavengers.

____ 4. The material from which coal is formed is

a) rocks.
b) animals.
c) shells.
d) plants.

____ 5. A complex relationship involving many plants and animals that feed on each other is called a food

a) habitat.
b) web.
c) chain.
d) relationship.

____ 6. All living things include which of the following elements?

a) nitrogen, carbon, chlorophyll, oxygen
b) nitrogen, carbon, oxygen, hydrogen
c) nitrogen, dioxide, calcium, hydrogen
d) nitrogen, chlorophyll, calcium, carbon

____ 7. Two of the advantages of solar energy are that it is

a) clean and efficient.
b) renewable and easily stored.
c) clean and non-renewable.
d) efficient and easily stored.

____ 8. A collection of populations that depend on each other and live in the same area is called a

a) community.
b) food web.
c) habitat.
d) population.

____ 9. The waste product of photosynthesis is

a) carbon.
b) oxygen.
c) hydrogen.
d) nitrogen.

____ 10. The energy producers in all food chains are

a) bacteria.
b) small scavengers.
c) green plants.
d) animals that contain chlorophyll.

____ 11. Which of the following is a good example of an ecological community?

a) deer, berry bushes, wolves and bacteria
b) whales, frogs, lizards and seaweed
c) moss, cactus, rabbits and salmon
d) pine trees, salamanders, spiders and porpoises

____ 12. In Deer Lake, large globs of floating algae would stop sunlight from reaching many small water plants that some fish ate. This would have a large effect on

a) energy flow from producers to consumers.
b) matter cycles for water and carbon.
c) predation relationships between frogs and insects.
d) the role of decomposers in the ecosystem.

____ 13. What do decomposers do in the ecosystem?

a) They decrease the mineral supply in the environment.
b) They release matter from dead organisms for use by other organisms.
c) They use heat in the environment.
d) They return energy to the environment for use by the producers.

____ 14. Hydrogen is an example of a/an

a) element.
b) starch.
c) molecule.
d) compound.

____ 15. Energy that is active and moving is called

a) potential.
b) kinetic.
c) chlorophyll.
d) chemical.

____ 16. Lichen that grows on rocks is really made up of two living things. The first one makes sap that the second one eats, while the second one collects water for the first one. This is an example of what kind of relationship?

a) predation
b) mutualism
c) competitive
d) commensalism

____ 17. The deer on Burnaby Mountain eat leaves and grass. They can be called

a) producers.
b) predators.
c) herbivores.
d) carnivores.

____ 18. A large land area which has the same kind of climate and soil is called

a) a population.
b) a biome.
c) an ecosystem.
d) a community.

____ 19. The chemical made by plants to use in photosynthesis is

a) carbohydrates.
b) chlorophyll.
c) carbon dioxide.
d) oxygen.

____ 20. Suppose a blueberry bush used sunlight to make food for itself, and stored the food in its blueberries. A robin flies up and lands on the bush and eats the blueberries. The robin would be an example of a

a) decomposer.
b) predator.
c) producer.
d) consumer.

____ 21. The science of ecology mainly explores the

a) problems of pollution and overpopulation.
b) ways to conserve energy.
c) nature of living things.
d) relationships between living and non-living things.

____ 22. A bird eats sunflower seeds from a garden. Later, a cat eats the bird. Both events make up

a) a predation relationship.
b) a food chain.
c) an ecosystem.
d) a biome.

____ 23. One of the steps of the oxygen cycle is

a) respiration.
b) oxidation.
c) carbonation.
d) precipitation.

____ 24. Which of the following is the definition of an ecological relationship?

a) partners living in the same community but not related to each other
b) interacting populations in one area
c) two partners and each affects the other
d) a collection of things which are living and non-living

Mrs. Christy - Class D

ECOLOGY Multiple-Choice Test

Answer Key

Item	Correct Answer	Item	Correct Answer
1	B	13	B
2	A	14	A
3	C	15	B
4	D	16	B
5	B	17	C
6	B	18	B
7	A	19	B
8	A	20	D
9	B	21	D
10	C	22	B
11	A	23	A
12	A	24	C

Mrs. Christy - Class D

Concepts	Number of Times Concept was Taught	Number of Times Concept was Tagged
ECOLOGY: Lesson One		
1. ecology	1	
2. community	1	
3. all living things made up of elements		
a) nitrogen	1	
b) carbon	1	
c) oxygen	1	
d) hydrogen	1	
ECOLOGY: Lesson Two		
1. ecological relationships - definition	2	1
a) neutralism	1	
b) commensalism	1	
c) mutualism	1	
d) competitive	1	
e) amensalism	1	
ECOLOGY: Lesson Three		
1. ecology	1	
2. ecologist	1	
3. ecosystem	1	1
4. kinetic energy	1	1
5. potential energy	1	1
6. photosynthesis	1	
a) leaf	1	
b) chlorophyll	1	
c) carbon dioxide	1	
d) transpiration	1	
e) carbohydrates	1	
7. plants as producers of energy	1	
8. consumers	1	
9. herbivores	1	1
10. carnivores	1	1
ECOLOGY: Lesson Four		
1. potential energy	1	1
2. kinetic energy	1	1
3. photosynthesis	1	1
4. scavengers	1	
5. decomposers	1	
6. carbon cycle	1	
7. nitrogen cycle	1	
8. elements	1	1
9. compounds	1	1

Mrs. Christy - Class D

Concepts	Number of Times Concept was Taught	Number of Times Concept was Tagged
ECOLOGY: Lesson Five		
1. carbon cycle	1	
2. calcium cycle	1	
3. photosynthesis	1	1
4. transpiration	2	2
5. plants as producers of energy	1	
6. nitrogen cycle	1	
7. compounds	2	2
8. elements	2	2
9. decomposers	1	1
10. scavengers	1	1
11. potential energy	1	1
12. kinetic energy	1	1
13. non-renewable resources	2	1
14. renewable resources	1	
15. coal formed by dead plants	1	
ECOLOGY: Lesson Six		
1. non-renewable resources	1	
2. coal formed by dead plants	1	1
3. oil formed by dead plants and animals		
4. renewable resources		
5. solar energy		
a) advantages	2	2
b) disadvantages	2	2
6. biomes	1	
a) tundra	1	
b) coniferous	1	
c) deciduous	1	
d) rainforest	1	
e) grassland	1	
f) desert	1	
7. food web	1	1

Ecology Part II

Mrs. Christy

Class E

Name ____________________

Grade ____________________

Here are some questions about the ecology unit. Try to answer each question as best as you can by filling in the blank with the correct response. If you don't know the answer to a question, make your best guess. Be sure to have an answer for every question.

You will have 15 minutes to answer these questions. If you finish early, hand in your paper.

____ 1. The layer of air surrounding the earth is called the

a) biosphere.
b) hydrosphere.
c) lithosphere.
d) atmosphere.

____ 2. The energy producers in all food chains are

a) green plants.
b) animals that contain chlorophyll.
c) small scavengers.
d) bacteria.

____ 3. The sun is an excellent source of energy because it is

a) radiant.
b) renewable.
c) recycled.
d) large.

____ 4. A complex relationship involving many plants and animals that feed on each other is called a food

a) relationship.
b) habitat.
c) web.
d) chain.

____ 5. A collection of populations that depend on each other and live in the same area is called a

a) food web.
b) community.
c) habitat.
d) population.

____ 6. Which of the following is the definition of an ecological relationship?

a) two partners and each affects the other
b) partners living in the same community but not related to each other
c) interacting populations in one area
d) a collection of things which are living and non-living

____ 7. The waste product of photosynthesis is

a) carbon.
b) nitrogen.
c) hydrogen.
d) oxygen.

____ 8. The materials from which oil is formed are

a) animals and rocks.
b) plants and rocks.
c) rocks and shells.
d) plants and animals.

____ 9. The deer on Burnaby Mountain eat leaves and grass. They can be called

a) predators.
b) carnivores.
c) producers.
d) herbivores.

____ 10. Two of the advantages of solar energy are that it is

a) renewable and easily stored.
b) efficient and easily stored.
c) clean and efficient.
d) clean and non-renewable.

____ 11. Plants obtain oxygen through

a) photosynthesis.
b) their leaves.
c) air.
d) water.

____ 12. An example of potential energy is

a) the sun.
b) the wind.
c) sap in a maple tree.
d) a water fall.

____ 13. When whales eat microscopic animals, they are participating in what kind of a relationship?

a) competitive
b) predatory
c) mutualistic
d) commensalistic

____ 14. The science of ecology mainly explores the

a) nature of living things.
b) relationships between living and non-living things.
c) problems of pollution and overpopulation.
d) ways to conserve energy.

____ 15. The process of plants giving off oxygen into the air is called

a) oxydation.
b) precipitation.
c) transpiration.
d) respiration.

____ 16. Which of the following is a non-renewable source of energy?

a) oil
b) wind
c) wood
d) water

____ 17. A large land area which has the same kind of climate and soil is called

a) an ecosystem.
b) a population.
c) a biome.
d) a community.

____ 18. Which of the following is a good example of an ecological community?

a) deer, berry bushes, wolves and bacteria
b) moss, cactus, rabbits and salmon
c) whales, frogs, lizards and seaweed
d) pine trees, salamanders, spiders and porpoises

____ 19. Energy that is active and moving is called

a) chlorophyll.
b) potential.
c) kinetic.
d) chemical.

____ 20. Black squirrels and brown squirrels live in Stanley Park. They live in the same trees and eat the same food. This is an example of what kind of relationship?

a) competitive
b) predatory
c) mutualistic
d) commensalistic

____ 21. What do decomposers do in the ecosystem?

a) They use heat in the environment.
b) They release matter from dead organisms for use by other organisms.
c) They decrease the mineral supply in the environment.
d) They return energy to the environment for use by the producers.

____ 22. Suppose a blueberry bush used sunlight to make food for itself, and stored the food in its blueberries. A robin flies up and lands on the bush and eats the blueberries. The robin would be an example of a

a) decomposer.
b) producer.
c) consumer.
d) predator.

____ 23. The material from which coal is formed is

a) animals.
b) rocks.
c) plants.
d) shells.

____ 24. The chemical made by plants to use in photosynthesis is

a) oxygen.
b) chlorophyll.
c) carbon dioxide.
d) carbohydrates.

Mrs. Christy - Class E

ECOLOGY Multiple-Choice Test

Answer Key

Item	Correct Answer	Item	Correct Answer
1	D	13	B
2	A	14	B
3	B	15	C
4	C	16	A
5	B	17	C
6	A	18	A
7	D	19	C
8	D	20	A
9	D	21	B
10	C	22	C
11	D	23	C
12	C	24	B

Mrs. Christy - Class E

Concepts	Number of Times Concept was Taught	Number of Times Concept was Tagged
ECOLOGY: Lesson One		
1. ecology	1	
2. community	1	
3. atmosphere	1	
4. hydrosphere	1	1
5. lithosphere	1	1
6. biosphere	1	1
7. all living things made up of elements		
a) nitrogen	1	
b) carbon	1	
c) oxygen	1	
d) hydrogen	1	
8. ecological relationships - definition	1	
a) neutralism	1	
b) commensalism	1	
c) mutualism	1	
d) amensalism	1	
e) competitive	1	1
ECOLOGY: Lesson Two		
1. ecology	1	1
2. ecologist	2	
3. ecological relationships - definition	1	1
a) mutualism	1	
b) commensalism	1	
c) amensalism	1	
4. ecosystem	1	
5. cycles	1	
6. potential energy	1	
7. kinetic energy	1	
ECOLOGY: Lesson Three		
1. potential energy	1	
2. kinetic energy	1	
3. plant as producer	2	1
4. photosynthesis		
a) leaf	2	
b) chlorophyll	2	
c) carbon dioxide	2	
d) transpiration	2	1
5. consumers	1	
6. herbivores	1	1
7. carnivores	1	1

Mrs. Christy - Class E

Concepts	Number of Times Concept was Taught	Number of Times Concept was Tagged
ECOLOGY: Lesson Four		
1. plants as producers	1	1
2. photosynthesis	1	1
3. kinetic energy	1	
4. potential energy	1	
5. decomposers	1	1
6. carbon cycle	1	
7. oxygen cycle	1	
8. water cycle	1	
9. calcium cycle	1	
10. hydrogen cycle	1	
ECOLOGY: Lesson Five		
1. potential energy	1	1
2. kinetic energy	1	1
3. photosynthesis	1	
4. renewable energy	2	1
5. non-renewable energy	1	
6. coal formed by dead plants	1	1
7. oil formed by dead plants and animals	1	1
ECOLOGY: Lesson Six		
1. renewable resources	1	
2. solar energy		
a) advantages	1	
b) disadvantages	1	
3. biomes	2	1
a) tundra	1	1
b) coniferous	1	1
c) deciduous	1	1
d) rain forest	1	
e) grassland	1	
4. community	1	1
5. food web	1	

Mrs. Christy - **Class C**

ECOLOGY Multiple-Choice Test
Items from Each Lesson

	LESSONS					
	1	2	3	4	5	6
ITEMS	5	4	1T	2T	3T	11
	16T	10T	8	12	9	15T
	7T	13T	18	14	20	18
	6	22	21T	19T	23T	24T

Note: T means that the content in the item was tagged with an instructional stimulus during the lesson.

Mrs. Christy - **Clas C, D, & E**

ECOLOGY Essay Test
Items from Each Lesson

	LESSONS		
	1 - 2	3 - 4	5 - 6
ITEMS	1		
		2	
			3

Mrs. Christy - Class D

ECOLOGY Multiple-Choice Test
Items from Each Lesson

	LESSONS					
	11	22	33	44	55	66
ITEMS	6	1	10T	13	3	5T
	8	2	12T	14T	4	7T
	11	16	15T	17T	9T	18T
	21	24T	20	23	19T	22

Note: T means that the content in the item was tagged with an instructional stimulus during the lesson.

Mrs. Christy - Class E

ECOLOGY Multiple-Choice Test
Items from Each Lesson

	LESSONS					
	1	2	3	4	5	6
ITEMS	18	6T	27	7T	3T	10
	1T	19	9T	22	16	17T
	13	14	2T	21T	23T	4
	20T	12	11T	15	8T	5

Note: T means that the content in the item was tagged with an instructional stimulus during the lesson.